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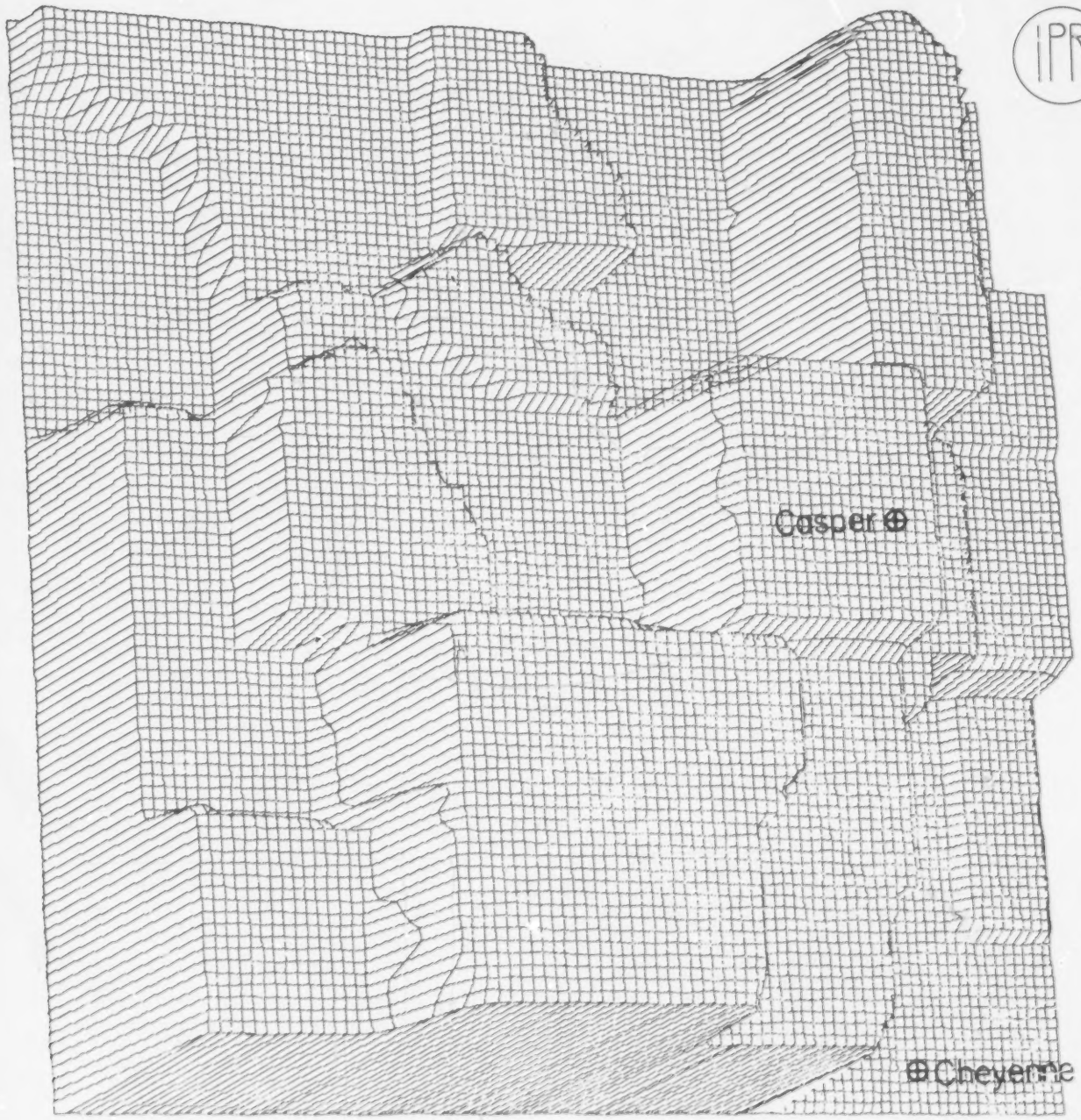
Wyoming Quarterly Update



Largest Decreases in Taxable Sales by County (3rd quarter 1983, compared to 3rd quarter 1982)

CRIS

Census Retrieval Information Service

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Judy Dennison and G. Fred Doll
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University of Wyoming

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Research and Statistics Division
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Wyoming Quarterly Update

Wyoming Quarterly Update (WQU) represents the efforts of the Institute for Policy Research (IPR) at the University of Wyoming to provide improved data access services. The data presented in WQU are assembled from secondary sources, such as government agencies and private industry. The staff of IPR greatly appreciates the ongoing cheerful cooperation of each of the data sources listed in the bibliography.

WQU provides current indicators and timely, easily accessible data. Most of the data published in WQU are updated quarterly with the most current numbers. The complete data sets from which WQU originates are maintained, together with documentation by IPR. Readers are encouraged to contact IPR to find out how to gain access to data which does not appear in the WQU. Many data series, such as gasoline sales and taxation data, span more than 30 years. Numerous other series cover 20 years or more.

Efforts to expand the subject and geographic detail (county data) of data sets will be made continuously. Featured for the eighth time in this edition are county profiles. Current data and discussions are presented for Albany and Carbon counties.

The cover of each edition features a contour map illustrating the geographic distribution of a particular variable. This edition presents a contour map depicting greatest decreases in county taxable sales during the third quarter of 1983, as compared to the same period during 1982.

First-time readers of WQU should refer to the "format" explanations on page -- for keys on how best to use and interpret data presented in this publication.

For additional information, contact WQU editor S.T. Mast at:

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OTHER IPR SERVICES AND RESEARCH REPORTS ARE LISTED ON THE LAST PAGE OF THIS WQU.

INSTITUTE FOR POLICY RESEARCH
OFFICE OF RESEARCH AND GRADUATE STUDIES
UNIVERSITY OF WYOMING

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WYOMING SCENE

Overview and Perspective

The news in the national economy was as cheery as the holiday season by year's end, as the recovery continued to outstrip nearly everyone's best expectations. Instead of the moderation that was expected to materialize by the third quarter, the economy continued to forge ahead, pushed along by heavy consumer spending and large increases in capital investments.

Retailers looked ahead to their brightest Christmas season in years. In November, retail sales increased 1.9 percent over October levels; auto sales during the first 10 days of December were running 21.1 percent higher than for the same period in 1982. And economists were predicting retail sales would continue to be strong into 1984, although in the coming months, personal income likely would rise more slowly and retail sales more modestly.

The vigorous holiday activity capped a second half marked by rising consumer confidence, declining unemployment, and low inflation.

The third quarter was marked by advances on many fronts. The Gross National Product (GNP) grew by 7.9 percent during the period, 2 percent above its previous peak of two years ago. The U.S. Commerce Department said the third quarter generated goods and services at an annual rate of $3.363 trillion. At the end of 1982, the GNP was worth $3.073 trillion.

Although big ticket orders slumped temporarily during September, auto sales rebounded strongly during October, increasing by 36.1 percent over October 1982. It was the best monthly performance in four years, and automakers expected to post record profits during 1983 (exceeding $5.5 billion).

Corporate profits climbed by 11.6 percent after taxes during the third quarter. The profits helped relieve some of the pressure caused by high interest rates and helped companies finance inventories and capital investments.

And capital spending continued to advance at a rapid pace. According to the Commerce Department, expenditures for new plants and equipment rose $11.2 billion during the third quarter, to an annual growth rate of 16 percent. And more growth was expected during the fourth quarter.

The leading economic indicators rose 0.8 percent in October, indicating an expansion in the economy, despite the massive federal deficit and high interest rates. It was the fourteenth consecutive rise in the composite index, a performance surpassed since World War II only by gains posted following the 1973-1975 recession. Six of the ten indicators contributed to the rise, led by new business formations. Others that contributed to the rise included new orders for consumer goods, building permits, stock prices, and money supply.

Sales of new single-family homes rose 8.2 percent in October, to an annual rate of 660,000. The September-October increase virtually wiped out the decline in sales experienced between May and August.

Unemployment fell to 8.4 percent

nationally during November, a dramatic improvement from the 8.8 percent rate registered in October. Improvements were posted in nearly every category and in nearly every state. In November, the number of workers on industry payrolls increasing by 370,000, bringing the total civilian labor force to 107.7 million. About 61 percent of major industries added workers in November.

Some cautionary notes with respect to employment were sounded, however. The Conference Board, an industry group, suggested that 1984 wage increases would be held to bare-minimum levels for almost all categories of workers, the result of corporate competition, deregulation, lower priced imports, and relatively high unemployment.

At the same time, the National Planning Association said structural problems in the labor market would still result in concentrations of economically distressed groups and that such distress would probably increase throughout the remainder of the decade.

Such distressed groups would include unemployed persons or persons with wages too low to raise them out of poverty, youths attempting to enter the labor market, dislocated workers accustomed to good pay but who find their jobs disappearing, and older workers with little earning power or retirement income.

The national debt also continued to be a concern. In November, Congress and the president raised the national debt ceiling to $1.49 trillion.

At the same time, the Federal Reserve System estimated that the total debt of domestic corporations, governments, households, and farms grew to $5.08 trillion during the third quarter. The national debt at all levels equates to $21,617 for every person in America.

In Wyoming, the unemployment rate continued to decline, dropping to 7.7 percent during the third quarter. This compared to a rate of 10.1 percent for the second quarter. However, much of the decline was attributed to persons leaving the state who could not find work, rather that to economic expansion. Thus, through the end of the year, Wyoming continued to lag behind the national recovery.

In October, Fremont County registered the highest unemployment rate--11.9 percent--due in large measure to the closure of U.S. Steel's iron ore mine near Lander. Carbon County had the second highest unemployment rate (8.0 percent) and Lincoln County the third highest (7.9 percent).

In the energy sector, the number of oil and gas rigs operating in the state continued to rise. By late November, 137 rigs were active in the state, according to the Hughes Tool Co., compared to only 58 active rigs last May.

Coal production also showed some improvement. During the third quarter, coal production reached 27.7 million tons, up from 24.7 million during the second quarter. However, total demand remained soft, and layoffs in the Powder River Basin occurred for the first time in a decade.

S.T. Mast, IPR

# #

Winter Minerals Outlook

OVERVIEW

The year-end news is not so bad. Oil and gas drilling in Wyoming continues to increase after a sluggish start in early 1983, and as anticipated earlier, the first seven months' production of natural gas in 1983 is 8 percent above last year. The real surprise is trona. Due to significant production increases in August, September, and October, 1983 trona production is now forecast to actually exceed the 10.1 million tons mined in 1982. Earlier forecasts, which were based on the first half of the year, suggested trona production might decline to 8.7 million tons in 1983.

Coal production is still holding a course slightly above last year, but if it does exceed the 108 million tons mined in 1982, it won't be by much. Although reported monthly deliveries to power plants are 5.5 percent above last year, unreported tonnages (which are mostly industrial and small power plant contracts) are expected to fall short of the 4.8 million tons in that category in 1982. This prognosis is based on mine closures and production cutbacks announced by the mines that generally account for the smaller contracts.

Uranium and iron ore production, on the other hand, have deteriorated even further, and oil production was running about 1 percent below 1982 at mid-year. Another uranium mine and mill closed in November, and the state's last iron ore mine appears all but closed permanently.

Current price indicators suggest that the 1983 wellhead price for natural gas may increase 10-15 cents per mcf over last year, but oil prices may be $2.00 or more below the average wellhead price of 1982. New coal prices and renegotiated contract prices are substantially below previous years, and soda ash prices are falling. Meanwhile, uranium prices are increasing slightly or holding steady.

The forecast for 1984 mineral production is looking more optimistic than 1983. Oil, natural gas, coal, and trona production are all expected to exceed 1983 levels. No resumption of iron ore mining is expected, however, and uranium production will likely be little more than 1 million tons.

Recent federal leasing actions will have an impact on mineral activities in 1984. In fact, leasing activities on federal lands have ground to a near halt with the imposition of moratoriums on both federal coal leasing and the federal oil and gas lease lottery. The coal- leasing moratorium was imposed several months ago while the Commission on Fair Market Value Policy for Federal Coal Leasing (Linowes Panel) investigated the Department of the Interior's coal-leasing practices. Although public comments on the panel's draft findings are due by the middle of December, a final report is not expected until sometime early next year. Meanwhile the moratorium will remain in effect.

Similarly, the six-week suspension of the federal oil and gas lease lottery, which was to expire at the end of November, will continue into 1984. Federal officials are now indicating the moratorium may be extended several more months in Wyoming, due to a large backlog in geologic and mineral evaluations of tracts. There is little, if any, enthusiasm among the independent and major oil companies for continuing the suspension.

Gary B. Glass, State Geologist,
Wyoming Geological Survey

METALS AND PRECIOUS STONES UPDATE

Now that winter has set in, exploration for metals and diamonds in the state of Wyoming has "cooled" down. But Wyoming has numerous metal deposits that are enticing to the exploration geologist and will again attract many mining companies in the upcoming 1984 field season. How much exploration and activity will largely depend on precious metal prices. If gold stabilizes above $400 an ounce, Wyoming should continue to receive a fair amount of exploration activity. If the price of gold should rise to near $450 an ounce, activity should show significant increases; but if the price remains below $400 an ounce, exploration activity will decline in response to lower prices.

For Wyoming's iron ore mining industry, 1983 was a disastrous year. U.S. Steele Corporation suspended mining operations at its Atlantic City open-pit iron mine, citing the costs of labor, utilities, transportation, taxes, and royalties as being too high to continue mining operations south of Lander. While in full operation, the Atlantic City Mine employed more than 400 people and extracted 5 million tons of iron ore per year. The mine was developed on a structurally thickened, oxide-facies taconite within the South Pass greenstone belt.

In the Hartville Uplift, on the eastern side of the state, Colorado Fuel and Iron Company (CF & I) began removing mining equipment and reportedly initiated flooding of the lower workings of its underground iron ore mine. The Sunrise Mine produced about 500,000 tons of ore per year prior to suspension of operations in 1980. This new activity suggests that mining operations will not resume for quite some time, if ever again. The iron ore at Sunrise occurs in an Archean hematite schist (Silver Springs Schist), which was folded into an east plunging synform. The iron-rich schist was about 500 feet to 2,100 feet in horizontal dimensions and continued to a depth of nearly 1,000 feet. Mining ceased at a depth of about 700 feet, with at least 10 years of reserves remaining in place.

Gold West Corporation recently received tentative approval from the U.S. Forest Service to open a placer gold mine, pending approval

from the Wyoming Department of Environmental Quality (DEQ). If DEQ grants the necessary mining permit, Cold West reports that it will begin operations along Cottonwood Creek about 25 miles east of Jackson. The permit would allow the company to process about 500 cubic yards of gravel per day. Cold West would remove precious metals with gold washers and vibrator separators.

Other placer gold operations continued throughout the summer and fall in the South Pass greenstone belt along the southern tip of the Wind River Range, in addition to some underground exploration at the Carrisa, Mary Ellen, and Saint Louis mines. Freeport Exploration received a dozing exploration permit from DEQ for its exploration activities near the historic Miners' Delight Mine. The majority of the mines in the South Pass District were developed in quartz veins and shear zones along a northeasterly trending metagabbro. Some production estimates suggest that as much as 325,000 ounces of gold were mined from this district in the past. Additional activity in the South Pass greenstone belt included sampling programs by a number of mining firms, as well as sampling and underground mapping by the Geological Survey of Wyoming. Interested persons may contact Dan Hausel at the Geological Survey of Wyoming, Box 3008, University Station, Laramie, Wyoming 82071, for available information and maps of this district produced by the survey.

Exxon Minerals continued limited exploration activities on its newly acquired Ferris-Haggarty property in the Sierra Madre Range of Carbon County. The Ferris-Haggarty Mine was a world-class deposit during the early 1900's because of its high-grade copper ore (sometimes running as high as 15 percent to 20 percent copper). It had a 15-mile long tramway, which hauled ore from the mine to a mill and smelter constructed at Riverside, Wyoming. Much of the ore mined from the Ferris-Haggarty was high-grade, epigenetic, fracture-fill ore in a chlorite-to-muscovite-quartzite. The ore was emplaced along the contact with an overlying impermeable schist in the hanging wall. Exxon was possibly attracted to the mine because much of the low-grade ore was left untouched by the early miners. This low-grade ore could run as high as 1 percent or 2 percent copper, and possibly carry traces of silver and gold. Also of interest, samples collected by the Geological Survey of Wyoming several years ago, as well as thin-sections made from those rocks, suggest that much of the ore was probably stratiform, or syngenetic, and was partially remobilized into fractures and veins. Historic mine reports indicate that the quartzite may have been mineralized over a thickness of at least 30 feet.

In the Bradley Peak area of the Seminoe greenstone belt to the north of Sinclair, Wyoming, Timberline Minerals continued exploration of its gold deposit. Work this fall included the opening of the historic Penn gold mines, as well as core drilling. Visible gold in this area has been observed in quartz veins, metagabbros, iron formations, and talc-rich exhalite. Additional information on this deposit was published in the 1983 Colorado Mining Association Yearbook in a paper entitled, "Metallogeny of Some Wyoming Deposits."

Exploration for diamondiferous kimberlite continues. The Cominco American-Chevron Minerals joint venture, as well as Superior Minerals, explored the Colorado-Wyoming kimberlite province. The Geological Survey of Wyoming continued stream sediment sampling and sample processing in the Laramie Range of Wyoming. The survey conducted research in cooperation with the University of Wyoming Geology Department's "Remote Sensing Group" to investigate applications of remote sensing imagery in kimberlite exploration.

The state of Wyoming is host to many mineral deposits that have and will still receive exploration interest in the upcoming years. Copper Mountain north of Shoshoni received a fair amount of interest by exploration companies this past summer. In addition to mining company interest, the Geological Survey of Wyoming conducted regional reconnaissance mapping (1:24,000 scale), as well as detailed surface mapping (1:7,000 scale) and underground mine mapping (1:120 scale), of the three major mineralized areas (Gold Nugget, McGraw, and DePass mines). The Copper Mountain region has a number of potential ore deposits.

The southern Sierra Madre and the Mullen Creek-Nash Fork shear zone of the central Sierra Madre Range have a number of stratiform, exhalitive, massive-sulfide deposits. One such deposit was explored and drilled by Conoco Minerals in 1979. After the property was dropped by Conoco, Timberline Minerals staked the zinc-copper massive-sulfide deposit in 1983.

Similar exhalitive base and precious metal deposits may also occur in the Hartville Uplift. The historic Michigan Mine in the central Hartville Uplift has the appearance of an exhalitive iron formation that is stained with copper silicates and stratigraphically overlain by a chemically precipitated chert.

Another region that is bound to attract attention is the Overthrust Belt of western Wyoming. Red bed copper-zinc-silver deposits are known in Pennsylvanian-Permian and Jurassic sandstones. The Phosphoria Formation must be considered seriously for its potential for hosting microscopic gold-silver deposits.

In summary, the potential for the discovery of commercial metal deposits in Wyoming is high, but such discoveries will await the right exploration and economic climate. Only a few of the more interesting mineral deposits are highlighted in this outlook article.

W. Dan Hausel, Deputy Director,
Wyoming Geological Survey

URANIUM AND INDUSTRIAL MINERALS UPDATE

Uranium

Union Carbide, Wyoming's oldest major producer of refined uranium oxide, announced in November that it was closing its Gas Hills operations (mines and mill complex) indefinitely. Union Carbide has mined uranium

in the Gas Hills since 1960. The layoff affects over 100 workers.

The closure of Union Carbide's Gas Hills operations is the fourteenth mine closure in Wyoming since 1979. Wyoming still has five operating uranium mines and mills, down from 17 in 1978.

Trona

Wyoming's trona industry is operating at 75 percent capacity, compared to 73 percent one year ago, and to a high of 90 percent three years ago. The price of soda ash (refined trona) has been cut by one major producer from $84 per ton to $69 per ton. Industry officials cite layoffs and the increased use of plastic instead of glass in containers as signs the industry is in trouble. Industry surveys by the U.S. Bureau of Mines, however, indicate that although the use of plastics is indeed hurting the industry, exports have increased 24 percent over last year (218,000 tons were exported in June 1983, 18.3 percent of the total production of soda ash). This increase apparently reflects a very slight positive trend for Wyoming's trona industry. Production in 1983 should show a slight increase over 1982, which was the worst year of the recession.

Gypsum and Limestone

Gypsum and limestone production this past fall quarter increased slightly over the same period last year, reflecting general economic trends.

Sand and Gravel

Sand and gravel production remains high, particularly in east-central Wyoming, due to the construction and upgrading of the Chicago & North Western Railroad's new branch line right-of-way.

Bentonite

Bentonite production in 1983 should exceed 1982's low figure of 2,345,914 tons. Most of the increase in production is for foundry clay used in making castings. Specialty uses and the demand for taconite pelletizing clay are also increasing. These uses reflect the general economic improvement. There is only slight improvement, however, in the demand for bentonite for drilling mud, reflecting only slight increases in oil and gas well drilling, which in 1982 accounted for about 50 percent of the total bentonite sales. Drilling mud should account for less than half of 1983 bentonite sales. Bentonite should continue to show improvement during the last quarter of 1983 and the first quarter of 1984.

Ray E. Harris, Uranium and Industrial Minerals Geologist
Wyoming Geological Survey

COAL UPDATE

Coal production for Wyoming in 1983 is forecast at 108 million tons, which is the same as 1982. Production from the Powder River Basin, which has been increasing at the annual rate of 12 percent for the last two years, is not expected to increase more than 5 percent over last year's production. This modest increase in the Powder River Basin will probably offset projected production decreases in other parts of Wyoming. If Wyoming's coal production does remain at or even exceed 108 million tons, there is a good possibility that Wyoming might become the second largest coal-producing state in the U.S. for 1983. West Virginia, traditionally ranked second behind Kentucky, has reported that its coal production for the first half of 1983 has dropped almost 16 million tons from last year, and that there is little hope for improvement the rest of the year. Wyoming's coal production in 1982 was only about 20 million tons less than West Virginia's production.

The Wyoming Geological Survey's forecasts for contracted production have been reduced from last year's forecasts to reflect deferred or cancelled deliveries on existing contracts, postponement or delays in construction of new power plants planning to use Wyoming coal, and to reflect power plants switching to other fuel sources (such as Texas lignite).

The sluggish coal market is even affecting coal mines in the Powder River Basin. In October, Thunder Basin Coal Company announced that in a cost-cutting reorganization of its mines, it was cutting back production at its newly opened Coal Creek Mine and increasing production by an equal amount at the Black Thunder Mine. The company also announced the layoff of 50 managers and technicians. This is the first time that layoffs in the coal industry have affected Campbell County mines in over 10 years. A more encouraging development occurred in Converse County early in November, when Glenrock Coal Company announced that coal demand at the Dave Johnson Power Plant had increased. Consequently, the mine's employees returned to a 40-hour workweek, after being on a 32-hour workweek since May.

The September federal coal lease sale of tracts in the Fort Union region of Montana and North Dakota was recently declared invalid when a federal district court issued a preliminary injunction forbidding the U.S. Department of Interior from issuing the leases. Some analysts say that the lease sale was not very successful, since no bids were received on new production tracts and only single bids were received on the maintenance tracts.

Also in September, the U.S. House and the U.S. Senate voted to place a moratorium on any further federal coal leasing until 90 days after issuance of a report to Congress on the leasing program. This report, which is due by the end of January 1984, is being prepared by the Commission on Fair Market Value Policy for Federal Coal Leasing (made famous by Former Secretary of the Interior Jim Watt's controversial remark about the make-up of the commission's members). The commission has completed its four-month review of the federal leasing program and its report is expected to

have significant impact on the current federal leasing program, and possibly, an impact on the calculation and distribution of federal royalties that Wyoming and other states receive from federal leases.

In coal transportation news, Burlington Northern (BN) and the Chicago & North Western (C&NW) railroads' 10-year battle for joint ownership of a railroad out of the Powder River Basin is apparently over. In October, BN accepted a federal order allowing C&NW to buy half-interest in the 93-mile rail line that was constructed by BN in 1977. The two railroads signed a 99-year agreement to share the rail line after BN dropped its U.S. Supreme Court appeal of the Interstate Commerce Commission's decision concerning the price ($76 million) and terms of the sale. Although the two railroads will share the same rail line, competition between the two for new coal-hauling contracts is keen; in mid-November, BN won a major contract with Cajun Electric Power Cooperative for coal deliveries from Shell Oil and Kerr-McGee Corporation mines in Wyoming to power plants in Louisiana. BN was forced to cut its current freight rates in order to compete with C&NW. Cajun hopes to save its customers about $500 million in freight rates over the next 15 years.

Coal slurry pipelines suffered another setback in September when the U.S. House of Representatives overwhelmingly defeated legislation that would have given coal slurry pipeline companies the power of federal eminent domain--a power previously granted to railroads and now granted to natural gas pipelines. Coal slurry proponents argue that this power is necessary to construct an alternative coal transportation system, since it would allow them access across property owned by railroads and other recalcitrant landowners along a pipeline right-of-way.

Richard W. Jones, Coal Geologist
Wyoming Geological Survey

WYOMING COAL PRODUCTION FORECAST TO 1990 (MILLIONS OF TONS)

	1981[1]	1982[1]	1983	1984	1985	1986	1987	1988	1989	1990
Campbell County	71.6	81.2	85.9	92.2	103.2	110.5	117.2	112.0	122.8	123.8
Converse County	3.6	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Sheridan County	2.8	3.0	2.7	2.2	2.2	2.2	2.5	3.0	3.0	3.0
Carbon County	8.5	5.0	4.0	4.6	4.6	3.7	3.8	5.1	5.6	5.6
Sweetwater County	11.2	11.0	8.1	7.6	8.1	9.1	9.1	11.0	11.0	11.0
Lincoln County	5.0	4.3	4.0	4.1	4.4	4.6	4.9	5.2	5.2	5.2
Hot Springs County	M[2]	M	M	M	M	M	M	M	M	M
Total Wyoming	102.8	107.9	108.0	114.0	125.8	134.4	141.8	149.6	150.9	151.9
Increase per year	9%	5%	-0-	5%	9%	6%	5%	5%	1%	1%
Estimated contracted production	110.0	119.0	122.6	128.6	137.1	142.6	147.6	149.6	150.9	151.9
Below contracts	7%	9%	12%	11%	8%	6%	4%	-0-	-0-	-0-

[1]These are actual values for comparison.

[2]M means minor tonnage (less than 0.1 million tons)

Forecast by Wyoming Geological Survey, September 1983.

OIL AND GAS UPDATE

As of December 1, the Wyoming rig count had climbed to 137, indicating a continued upswing in industry activity within the state. The total was 113 in early September. A Unioil Company discovery, approximately 16 miles northeast of Cheyenne, (along with an earlier Amoco discovery), are apparently stimulating interest in the Wyoming portion of the Denver/Julesburg Basin. Unioil's wildcat flowed oil at the rate of 865 barrels per day from the Upper Cretaceous Niobrara Shale. However, the major thrust of the current upswing continues to be in the Powder River Basin.

Oil and gas production figures recently released by the Oil and Gas Conservation Commission indicate a 2.9 percent decline in oil production in 1982 and a 2.2 percent increase in natural gas production. Oil production decreased to 118,715,785 barrels in 1982, as compared to 122,173,818 barrels in 1981. Gas production rose from 455,352,540 mcf in 1981 to 465,142,140 mcf in 1982. While there are over 1,000 fields in Wyoming, more than 60 percent of the state's oil and gas production comes from 20 large fields.

In terms of annual production, the three largest oil fields in the state during 1982 were Oregon Basin (8,985,327 barrels), Salt Creek (5,495,362 barrels), and Painter Reservoir (5,083,000 barrels). The three largest gas producers were Painter Reservoir (29.6 billion cubic feet), Brady (21.8 billion cubic feet), and Madden (16.76 billion cubic feet).

U.S. Department of Energy reserve estimates for Wyoming were released in August. Oil reserves increased from 840 million barrels in 1981 to 856 million barrels in 1982. Gas reserves jumped from 9,659 billion cubic feet in 1981 to 10,155 billion cubic feet in 1982.

Drilling and completion statistics for 1982 were published for Wyoming in the October 1983 issue of the American Association of Petroleum Geologists Bulletin (vol. 67, no. 10, p. 1618). Wyoming remained the most active state in the Rocky Mountain area, with the drilling of 2,062 exploratory and development wells. The Powder River Basin remained the most active basin in the state with 363 exploratory wells drilled, as compared to 79 wells completed in the second most active basin, the Green River Basin. However, the Green River Basin showed the best percentage of success at 53.2 percent. Also, overall activity has increased in the state in terms of exploratory wells drilled (664), and a continuing trend toward deeper drilling is indicated (average depth 8,410 feet).

Another item with potential consequences for petroleum exploration is the Wyoming Oil and Gas Conservation Commission's proposed new seismic rules (Rule 339). Frustrated by persistently in poor compliance with existing rules for seismic shot-hole plugging, and coupled with its concern for protecting shallow aquifers, the commission has proposed a ban on drilling holes for the detonation of explosives unless an operator demonstrates (1) that the data cannot be obtained by an alternative seismic technique; (2) that the data are not available from another operator; (3) that the person paying for the seismic exploration has the right to drill on the explored lands; and (4) that the person paying for the seismic exploration agrees to make the basic data available to other bonafide parties on terms that are just and equitable, to accept full liability for all damages associated with the exploration, and to comply fully with the commission's rules governing such operations.

The first public hearing on the proposed revision of Rule 339 is set for the regular January 1984 hearings in Casper, at which time numerous comments on the revised rule and proposals for alternative rules are expected. The commission last revised Rule 339 in May of 1983, when it required the bonding of seismic hole-plugging companies in addition to the seismic companies. Then in October, the commission fined a seismic operator $7,000 for the improper plugging of 14 holes. This was the first fine levied by the commission.

Alan J. VerPloeg, Petroleum Geologist
Wyoming Geological Survey

# #

Winter Agricultural Outlook

Agriculture has been undergoing severe adjustments in production and markets in 1983. The coming year promises to be one of further adjustments, although we should begin to see a more even distribution of improved conditions in agriculture.

This past year, a large portion of the farm sector has been hit by severe drought. The resulting low yields, combined with the acreage reduction program (PIK), impacted all segments of agriculture, including non-drought areas such as Wyoming.

Lower grain supplies nationally boosted most grain prices sharply higher, benefiting those parts of the U.S. that experienced normal rainfall. Livestock producers suffered low financial return, as feed prices escalated, encouraging liquidation of meat animals. The larger meat suppliers depressed prices in the livestock sector, resulting in a classic cost-price squeeze.

Compounding the problem from the U.S. standpoint are the declining export market shares experienced in the early 1980's. Declining exports of agricultural products reflect the presidential embargoes, increased competition from other exporting countries, and the strong U.S. dollar.

There are, however, a few bright spots on the horizon as we begin 1984. The U.S. economy is expected to continue to recover throughout 1984. A slow recovery in economic conditions is also expected in most countries around the world. Thus, a modest increase in demand is forecast for the coming year.

The U.S. livestock sector has passed the low price point in the current cycle, barring any natural (drought) or political (embargo) disasters. Since September 1983, seasonally adjusted cattle prices have improved persistently. And continued strength is forecast throughout 1984, with September 1984 calf and feeder cattle prices moving 25 percent higher than September 1983 levels.

Feed cattle prices should also increase throughout 1984, as a projected reduction in meat supplies is realized. Total meat supplies reached record highs on a quarterly basis for the second and third quarters of 1983. Significant declines in total meat production are expected to begin by the second quarter of 1984.

Lamb prices bottomed out in late September and have trended higher through early December. Wyoming producers who did not panic and sell in the September slump realized higher prices than in 1982. Some profit will be realized by lamb feeders, as fed lambs are marketed in the coming months. Prices received for wool by U.S. farmers and ranchers for the first 10 months of 1983 averaged 65 cents per pound on a grease basis. The average price per pound received in 1982 was 74 cents per pound. Wool prices, running substantially below year-earlier levels, will result in larger incentive payments being made in 1983. The wool incentive price support in 1982 was $1.37 per pound. In 1983, wool incentive payments were set at $1.53 per pound, or up 12 percent from 1982. Wool prices in 1984 are expected to show a slight improvement over prices received in 1983.

The overall agricultural outlook for 1984 is for smaller global supplies of grains and some pickup in demand for most crops. Crop prices will benefit from tightening supplies relative to usage. Livestock prices should be supported by reduced supplies and improved demand, especially in the second half of 1984. On balance, higher net farm incomes should be expected in the agricultural sector in the coming year.

Robert D. Carver
University of Wyoming

# #

Job Openings Outlook

Collectors

There is a slight shortage of qualified debt collectors in Wyoming. Presently, more purchases are being made on credit and the percentage of overdue accounts is rising. The high unemployment rate is resulting in an increasing number of unpaid bills. The inability to pay for goods and services has resulted in an increased demand for collectors.

Collectors work for hospitals, banks, loan companies, and collection agencies. They are responsible for contacting consumers who have overdue accounts. Most contacts are made over the phone, although some collectors may make in-person visits. Because of the nature of the job--collecting unpaid accounts--employers indicate that a limited number of people are interested in collector positions. Currently, there are approximately 150 collectors employed in Wyoming.

High school graduation is the minimum education requirement. Employers prefer personable and aggressive individuals who are even-tempered and persistent when dealing with consumers in difficult situations. Most beginners learn the necessary skills on the job, although business courses and sales experience provide a helpful background.

Collector trainees can expect to earn from $750-$850 per month. After training, wages start from $850-$1,150 per month. Maximum wages range from $1,100-$1,360, although some collectors' earnings exceed $2,000 per month (if paid a base salary plus a commission on accounts collected).

Farm Equipment Mechanics

Currently, a slight shortage of qualified farm equipment mechanics exists in Wyoming. Farm machinery is becoming increasingly sophisticated and therefore requires more mechanical knowledge. Because of the increasing sophistication in farm machinery, farm equipment mechanics need a broader background in areas such as diesel, hydraulics, and general state-of-the-art technology. The higher degree of knowledge, advances in technology, and increased educational training has created a shortage of qualified farm equipment mechanics.

The competition from higher paying jobs within the mining and oil industries has also reduced the number of farm equipment mechanics. In addition, the reduction in the number of farms nationally has reduced the total number of farm workers in America, and farm related occupations have become less attractive to new labor market entrants.

Farm equipment mechanic jobs are scattered throughout Wyoming's agricultural areas. Most farm equipment mechanics work for farm equipment dealers, independent repair shops, and large farms. There are approximately 250 farm equipment mechanics in Wyoming. Entry level wages for beginning farm equipment mechanics are $6.00-$7.00 per hour. Wages for persons with experience range from $8.00-$9.00 per hour.

Job skills are acquired through informal on-the-job training, community colleges, or apprenticeships. Most farm mechanics learn the trade informally on the job by assisting a skilled mechanic. Employers prefer high school graduates with a farm background, a mechanical aptitude, and experience, although formal training is becoming increasingly important.

Licensed Practical Nurses

There is a slight shortage of licensed practical nurses (LPNs) in Wyoming, particularly in rural areas. Employment for practical nurses depends upon replacement of those who leave their jobs and growth of hospitals, nursing homes, or establishments of alternative health care delivery. Currently, because of economic conditions, LPNs are staying with their jobs longer.

Practical nurses must be licensed by the State Board of Nursing. Requirements include:

- a high school diploma or equivalent
- graduation from a state approved practical nursing program
- passing the national council licensure examination

There are 1,153 persons licensed as practical nurses in Wyoming. Most are concentrated in larger towns where health care facilities are located.

Entry level wages for LPNs range from $950-$1,200 per month. The average maximum salary is approximately $1,350 per month.

Due to the shortage of registered nurses (RNs) in Wyoming, some LPNs are continuing their training and finding jobs as RNs at higher salaries.

For additional information contact Karen P. Scott, Wyoming Career Information System, Student Educational Opportunity, University of Wyoming, 766-6189.

Karen Scott, Wyoming Career Information System

State Revenue Outlook

Expectations with respect to growth in state General Fund revenues have been substantially altered during the past year, due in large measure to the unexpected severity of the recession in Wyoming.

Recently released projections prepared by the Consensus Revenue Estimating Group predict much less growth in state General Fund revenues than had been predicted in September 1982. For the two largest General Fund tax segments--sales tax and severance tax--only modest growth is now anticipated through FY 1986, while in September 1982, the Legislative Service Office (LSO) had forecast more substantial growth.

Actual General Fund sales tax collections were 32 percent less during FY 1983 than had been predicted by LSO in September 1982. And expectations for FY 1986 General Fund sales tax revenues are 56 percent less in the latest figures than had been forecast in 1982. Instead of sustained growth, the consensus is now that a decline in revenues will occur during FY 1984, followed by modest yearly increases through FY 1986.

The situation is much the same for General Fund severance tax revenues. Modest increases through FY 1986 are expected, reaching $122,100,000. In September 1982, larger increases had been expected by LSO, with total collections forecast to reach $139,939,780 by FY 1986--13 percent higher than current projections.

Current total General Fund projections reflect a similar lowering of revenue expectations, with less revenue through FY 1984 followed by increases through FY 1986 (reaching $406,200,000). In September 1982, LSO expected the total General Fund to reach $598,695,515 in FY 1986, 32 percent greater than currently projected.

The year 1982 was not a good time for forecasting the Wyoming economy. "We blew it," admits Jim Orr, assistant director of the Legislative Service Office (LSO). "Nobody forecast such a sudden, extreme, downward trend."

Layoffs and slowdowns became commonplace through the spring of 1983. Unemployment reached record-high levels, while sales tax collections continued to skid. Almost immediately, LSO began scaling down its sales tax expectations. When the final figures were in, LSO's original September 1982 projection for FY 1983 General Fund sales tax revenues had been 32 percent too high.

LSO had better luck projecting FY 1983 General Fund severance tax collections and total General Fund revenues, missing the mark by only 1 percent and 7 percent respectively. Such are the vagaries of economic forecasting, the application of science to a crystal ball. But the importance of such forecasts in Wyoming cannot be minimized. Orr says the figures are used by the legislature and the Governor's Office in preparing the budget and as a "guide to maximum amount of spending."

The reliability of such projections, given the problems inherent in soothsaying such slippery trends as consumer spending and natural gas demand, is more difficult to assess, although Orr says the state's record of accuracy with such forecasting has been "pretty phenomenal." But Orr readily agrees the recent forecasts are a mix of art, science, consensus, guessing, and, he adds, "gut feeling."

The latest projections were developed through a consensus-building process involving several state agencies, resulting in unified revenue forecasts. In the past, two sets of projections were developed: one developed by the Department of Administration and Fiscal Control, Research and Statistics Divison for the executive branch, and a second developed by the Legislative Service Office (LSO) for the legislative branch.

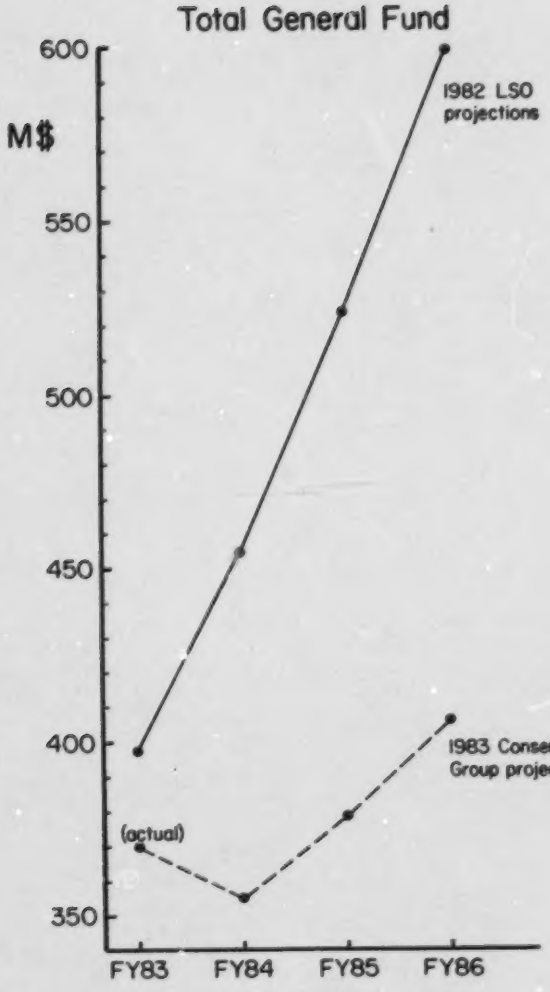
During the past 20 years, the value of mineral production in Wyoming has increased from about $361 million to over $5.6 billion--from about one-third of the state's total valuation (in both property taxes and severance taxes) to 71 percent. Forecasting minerals production and valuation is thus especially important.

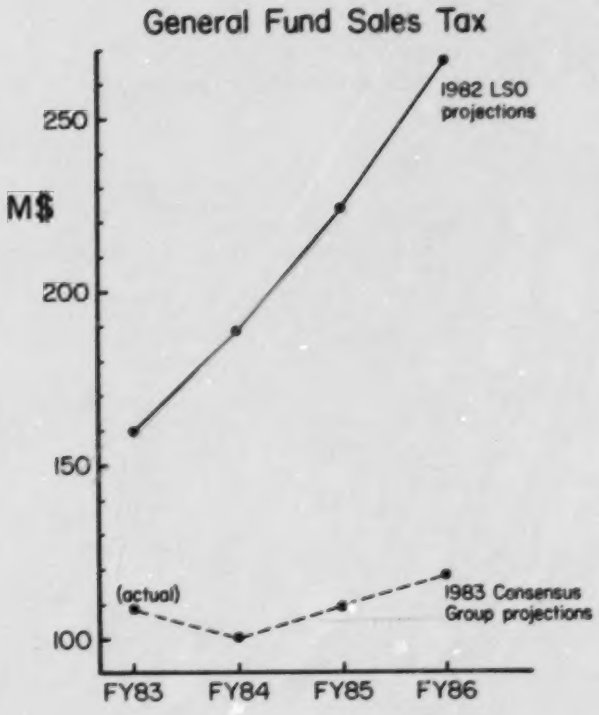
The 1983 minerals production and valuation estimates, upon which subsequent General Fund revenue estimates in part are based, were developed under LSO auspices and were derived through agreement among the Ad Valorem Tax Division, Department of Revenue and Taxation; the Minerals Division, Department of Economic Planning and Development (DEPAD); the State Geologist, Wyoming Geological Survey; and the Oil and Gas Supervisor, Oil and Gas Conservation Commission. Each produced a set of production and valuation projections for oil and natural gas; all except the Oil and Gas Conservation Commission produced projections for coal, trona, uranium, and all "other" minerals.

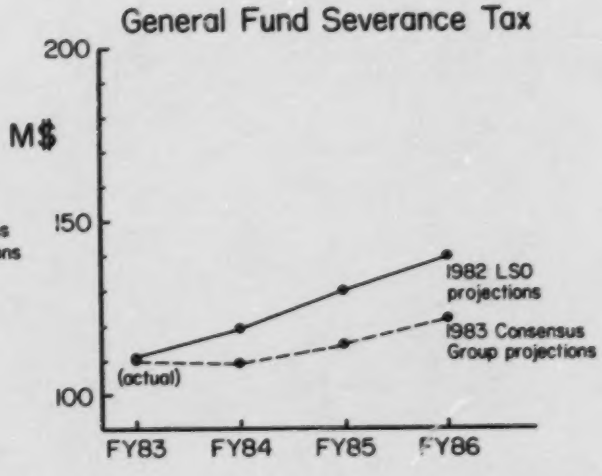
Each agency projection then was examined during roundtable discussions involving officials from the various agencies and a consensus was reached concerning what figures should represent the official projections.

Opinions concerning the course of minerals production varied. With respect to oil production, DEPAD predicted a steady decline through 1987. The Geological Survey also predicted a decline, but a slower decline,

Falling Expectations: General Fund Revenue Projections, 1982 vs 1983







MINERAL VALUATION PROJECTIONS BY
VARIOUS STATE AGENCIES, 1983-1987

	1983	1984	1985	1986	1987
Oil Valuation ($/bbl) (excluding "strippers")					
DEPAD	29.50	30.00	33.00	37.50	40.00
Ad Valorem	30.00	30.00	30.00	30.00	30.00
Geological Survey	27.00	26.00	26.00	28.00	30.00
O & GCC	29.00	29.00	32.00	36.00	40.00
Consensus	28.83	29.75	30.25	32.85	35.00
Gas Valuation ($/mcf)					
DEPAD	3.75	4.25	4.75	5.25	5.75
Ad Valorem	3.25	3.50	3.75	3.75	3.75
Geological Survey	3.50	3.75	4.00	4.50	5.00
O & GCC	3.77	4.22	4.67	5.12	5.57
Consensus	3.55	3.90	4.30	4.65	5.00
Coal Valuation ($/ST)					
DEPAD	11.25	12.00	12.50	13.00	13.50
Ad Valorem	10.90	11.40	11.90	12.40	12.90
Geological Survey	11.24	11.80	12.40	13.02	13.67
Consensus	10.90	11.40	11.90	12.40	12.90
Uranium Valuation ($/T)					
DEPAD	21.75	22.00	22.75	23.25	25.00
Ad Valorem	20.00	20.00	20.25	20.50	20.50
Geological Survey	23.00	27.00	28.00	29.00	35.00
Consensus	21.58	22.63	23.67	24.25	26.83

Source: "Taxes on Wyoming's Minerals: History and Projections," prepared by Legislative Service Office, October 1983.

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MINERAL PRODUCTION PROJECTIONS
BY VARIOUS STATE AGENCIES, 1983-1987*

	1983	1984	1985	1986	1987
Oil Production (total production, M/bbls)					
DEPAD	104.0	101.0	98.0	95.0	93.0
Ad Valorem	105.0	105.0	105.0	105.0	105.0
Geological Survey	106.0	105.8	105.6	105.4	103.2
O & GCC	108.5	112.5	116.5	113.6	110.9
Consensus	104.9	102.8	100.7	98.0	96.5
Gas Production (M/mcf)					
DEPAD	375.0	405.0	500.0	520.0	525.0
Ad Valorem	360.0	375.0	375.0	375.0	375.0
Geological Survey	375.0	400.0	425.0	475.0	525.0
O & GCC	363.9	376.6	389.2	401.9	414.6
Consensus	363.5	376.5	389.3	402.0	414.5
Coal Production (MST)					
DEPAD	108.0	114.0	120.0	125.0	130.0
Ad Valorem	107.0	113.0	120.0	127.0	132.0
Geological Survey	104.0	109.4	120.8	129.0	136.1
Consensus	104.0	109.4	120.8	129.0	136.1
Uranium Production (MT)					
DEPAD	2.6	2.6	2.7	2.8	2.8
Ad Valorem	2.6	2.6	2.7	2.9	3.2
Geological Survey	1.2	1.0	.75	.50	.90
Consensus	1.6	1.5	1.4	1.3	1.6

Source: "Taxes on Wyoming's Minerals: History and Projections," prepared by Legislative Service Office, October 1983.

*Figures rounded to nearest tenth.

ending at 1987 production levels that would be 10 million barrels higher than DEPAD predicted. The Ad Valorem Tax Division predicted production would remain constant at 105 million barrels throughout the entire period. The Oil and Gas Conservation Commission, on the other hand, forecast an increase in production through 1985, before dropping to 110 million barrels by 1987--the highest 1987 production level forecast. The consensus was that production would indeed decline each year through 1987, approximately in the manner and at the levels of production predicted by DEPAD (dropping to 96 million barrels by 1987. DEPAD had predicted a drop to 93 million barrels, the only 1987 production forecast among the agencies that was less than 103 million barrels).

In the case of natural gas production, three of the four agencies predicted increases in production through 1987, with the Ad Valorem Tax Division predicting level production through the period 1984-87. Predicted 1987 production levels ranged from 375,000,000 mcf (Ad Valorem Tax Division) to 525,000,000 mcf (DEPAD, Geological Survey). The figures officially adopted as the "consensus" projections, however, closely approximate the projections submitted by the Oil and Gas Conservation Commission, both in amounts of annual increases and in levels of production attained each year.

The consensus coal projections were precisely the figures submitted by the Geological Survey. Coal production is expected to reach 136,100,000 tons by 1987.

In the case of uranium, both DEPAD and the Ad Valorem Tax Division forecast increases in production, while the Geological Survey forecast several years of decline (with no increase before 1987). The 1987 production levels forecast for uranium ranged from 900,000 tons (Geological Survey) to 3,200,000 tons (Ad Valorem Tax Division). The consensus on uranium was that production would decline slowly through 1986, before rebounding in 1987 to a production level of 1,600,000 tons.

Since the amount of severance tax revenue generated is both a function of production and market value, establishing valuation projections also was an essential task. Again, opinions varied (see table).

State Geologist Gary B. Glass says the minerals group sometimes was deliberately conservative in arriving at a consensus projection. The weighted mean of the most optimistic forecasts, for example, in some cases was taken against the lowest forecast in arriving at a consensus figure. The conservative posture resulted from uncertainty and pessimism concerning the direction of Wyoming's economy: "There was not a lot of optimism exuding at the meetings," he says.

Glass says in previous years projections could be made by following trends; at the moment, however, the only trends are mostly plateaus and declines. "That makes projecting very, very difficult," he says.

The consensus production and valuation figures derived by the minerals group then were used as one component in determining General Fund projections--the second stage in the forecasting process.

The Consensus Revenue Estimating Group, which published its General Fund projections in October 1983, prepared its figures under an agreement between the Management Council of the Wyoming Legislature (represented by LSO) and the Governor's Office (represented by DAFC's Research and Statistics Division). A group representing the offices of State Auditor, State Treasurer, Department of Revenue and Taxation, Geological Survey, the University of Wyoming, LSO, and DAFC met on several occasions to develop the consensus General Fund projections. The group estimated that total General Fund revenues would hit a low-point of $355,000,000 in FY 1984, before increasing to $406,200,000 in FY 1986.

If making projections in uncertain times is difficult, making sense from such figures can be equally trying.

"We were called 'chicken little' last time for saying the projections were too high," says Ron Micheli, chairman of the House Revenue Committee. "And I guess in a way, the sky was falling."

Micheli says he hopes the legislature adopts a "responsible" attitude toward state revenue forecasts. "I hope we will realize these projections are just projections."

Something to be taken with a grain of salt. And depending upon the course of the economy, perhaps a little bromide.

S.T. Mast, IPR

# #

COUNTY PROFILES

Carbon County Profile

PHYSICAL CHARACTERISTICS AND CLIMATE

Carbon County is located in the southcentral portion of Wyoming. It is bordered by the state of Colorado to the south, by Sweetwater County, Wyoming, to the west, by Albany County to the east, and by Fremont, Natrona, and Converse counties to the north. The present boundaries of Carbon County were established by various acts of territorial legislatures prior to 1888, two years before statehood.

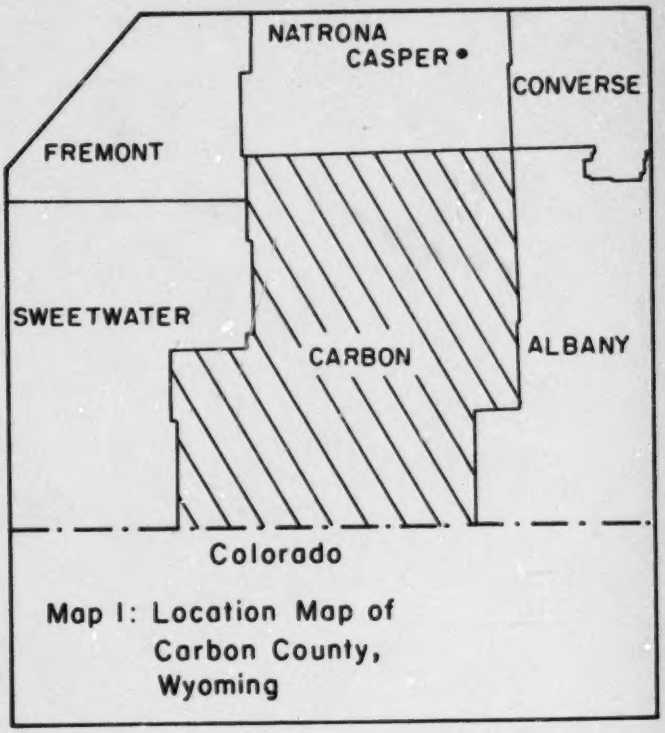
Carbon County is comprised of 5,114,240 total acres, or 7,991 square miles, ranking the county third in size among all Wyoming counties. Of the total dryland acreage, 2,682,986 acres are federally owned, 1,991,748 acres are privately owned, and 422,866 acres are owned by state and local governments.

Eleven incorporated municipalities are located within Carbon County. Rawlins, the largest community, was incorporated in 1886 and was designated the county seat in the same year. Hanna (incorporated in 1935), Medicine Bow (incorporated in 1909), and Saratoga are other major communities located in the county.

Carbon County sits astride the Continental Divide. The county is a study in contrast, including snow-capped mountains, high plateaus, and vast prairielands. The Seminoe and Shirley mountains rim the county's northern boundary, while the Sierra Madre and Medicine Bow ranges rise from the southcentral and southeastern portions of the county. To the west, the high plateau that is characteristic of much of Carbon County sweeps into a broad plain bordering the eastern rim of the Red Desert. Elevations within the county range from 5,000 feet along the valley floors to 12,006 feet on Medicine Bow Peak.

Carbon County is drained by the North Platte River Basin--including the North Platte River, the Encampment River, and the Medicine Bow River--and is collected by Seminoe Reservoir. The North Platte River and its many tributaries flow between the Sierra Madre Mountains and the Medicine Bow Mountains, giving rise to one of the most productive livestock-raising districts in Wyoming.

Climatically, Carbon County is classified as semi-arid. Average annual precipitation for the county overall is 10.9 inches, with greater amounts in the mountainous areas. Average annual snowfall for the county is 41.5 inches. The average annual temperature is 42°F, with monthly average temperatures ranging from the low 20°F's to the mid-60°F's in July. The growing season in the plains and lower valleys varies from 100 days to 112 days, depending upon location. The average date of the first freeze is September 3, while the average date of the last freeze is June 5.



Map I: Location Map of Carbon County, Wyoming

HISTORY

Carbon County is the site of one of the most significant paleontological discoveries of the 19th century. The Como Bluffs dinosaur site, located approximately 10 miles east of Medicine Bow near the Carbon County-Albany County line, has yielded at least 14 complete dinosaur skeletons since its discovery in 1877. It also yielded the first complete dinosaur discovered in the Rocky Mountain region, excavated in 1880. From time to time, residents in the area have attempted without success to make the Como Bluffs site a National Historic Monument.

During historic times, southern Wyoming was the hunting range of the Cheyenne and Arapahoe Indians. Many topographic features still bear Indian names. The Name "Medicine Bow," for instance, is apparently derived from areas of mountain birch the Indians found suitable for making bows. Today, Medicine Bow is the name of a town, a river, and a mountain range.

White men, fur traders and trappers including Jim Bridger and Baptiste Brown, may have arrived in Carbon County's Snake River Valley as early as 1825. Shortly thereafter, a few settlers and herders settled along the North Platte River, although little physical evidence remains of these early pioneers.

In 1862, hostilities with the Indians along the Oregon Trail in central Wyoming were at a high point. As a result, the Overland, or Cherokee, Trail was established through what is now Carbon County as a safer, more southerly route west. Fort Halleck was constructed at the base of Elk Mountain to protect emigrants. The Overland Stage and Pony Express also

Table 1: Carbon County Profile

Calendar Years		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
1.	Births	281.	297.	288.	316.	386.	359.	416.	462.	488.	549.	534.	490.[1]
2.	Deaths	153.	161.	152.	163.	144.	141.	141.	164.	177.	162.	154.	145.[1]
3.	Divorces	68.	82.	96.	83.	114.	117.	147.	144.	185.	188.	172.	189.[1]
4.	Marriages	159.	172.	194.	244.	214.	228.	268.	259.	315.	287.	318.	294.[1]
5.	Population[2]	14000.	14500.	15500.	16200.	16800.	17300.	18100.	19100.	20400.	21896.	22600.	23883.
6.	Coal Production (HT)	18335.	39983.	67064.	85359.	108308.	113707.	118313.	123718.	106441.	97437.	83529.	50529.
7.	Valuation on Coal Production (H$)	43818.	92705.	204068.	363012.	753977.	833338.	1124914.	1464436.	1573125.	1543862.	1585191.	1210471.
8.	Oil Production (HBBL)	12763.	11956.	12773.	12034.	11860.	15991.	12617.	14303.	21635.	21480.	32340.	28463.
9.	Valuation on Oil Production (H$)	42855.	40152.	50018.	75345.	74558.	98962.	84188.	112895.	233438.	496959.	1117121.	895446.
10.	Natural Gas Production (HMCF)	150826.	156747.	146739.	134103.	124143.	120435.	110607.	124652.	191529.	377784.	520260.	471756.
11.	Valuation on Natural Gas Production (H$)	22312.	23993.	26283.	24425.	33740.	48268.	67652.	103931.	280316.	913376.	1866613.	1972362.
12.	Uranium Production (HT)	8306.	8889.	6972.	4854.	5150.	5258.	7035.	16890.	11539.	12929.	9046.	6117.
13.	Valuation on Uranium Production (H$)	88075.	113263.	87397.	45797.	73018.	154746.	228327.	346383.	293097.	312889.	431706.	318744.
Fiscal Years		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
14.	AFDC Recipients	INA	1378.	1340.	1501.	1367.	1416.	1696.	1421.	1248.	1203.	1552.	1714.
15.	Food Stamp Recipients	649.	759.	618.	566.	601.	573.	481.	357.	331.	462.	626.	812.
16.	AFDC Payments ($)	INA	206532.	213844.	237996.	202026.	231639.	310015.	259064.	269224.	295853.	406868.	501669.
Calendar Quarters		4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
17.	Hotel, Motel, & Camp Sales & Use Tax Collections ($)	136350.	79701.	112838.	175596.	108529.	89911.	117102.	164465.	102585.	50678.	88917.	153964.
18.	Total Sales & Use Tax Collections ($)	2508462.	2341633.	2539463.	2730603.	2667099.	2348094.	2106790.	2453698.	2403099.	1791977.	1788007.	1902800.
19.	Liquor Sales ($)	539077.	270094.	372451.	439630.	486811.	327609.	374925.	391212.	472653.	277770.	327361.	359332.[3]
20.	Gasoline Gallonage (GL)	5649513.	4606145.	6069068.	7419008.	6120667.	4396744.	5793884.	6861744.	4705112.	3445678.	4691907.	6590000.[3]
21.	Civilian Labor Force	11074.	10680.	11225.	11302.	10793.	9869.	10659.	10337.	10208.	9870.	10735.	10313.
22.	Employment	10745.	10246.	10734.	10932.	10364.	9255.	9616.	9507.	9307.	8551.	9125.	9163.
23.	Unemployment	328.	434.	492.	370.	429.	614.	1043.	830.	901.	1319.	1610.	1150.
24.	Unemployment Rate	3.0	4.1	4.4	3.3	4.0	6.2	9.8	8.0	8.8	13.4	15.0	11.1

[1] Provisional data from the Wyoming Department of Public Health, Division of Vital Statistics.
[2] 1971 through 1979 and 1981 are estimates made by the U.S. Bureau of the Census, not an actual count as in 1980. 1982 is an estimate made by the Department of Administration and Fiscal Control.
[3] Estimate based on trend and actual data for July and August.

Sources:
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Series 5: Regional Economics Information System, Bureau of Economic Analysis. Population data included in table of "Personal Income by Major Sources."
Series 6-13: Annual Report: Department of Revenue and Taxation, Ad Valorem Tax Division. Fiscal year report.
Series 14-16: Wyoming Division of Public Assistance and Social Services. Management Information and Statistical Report. Published biannually.
Series 17: Sales and Use Tax Summary by County. Hotel, Motel, and Camp Sales Tax Collections. Wyoming Department of Revenue, Sales and Use Tax Division.
Series 18: Net Collections by Business Class by County. Wyoming Department of Revenue, Sales and Use Tax Division. Published monthly.
Series 19: Sales by County-City. Wyoming State Liquor Commission. Published monthly.
Series 20: The Gasoline Gallonage Report. Petroleum Association of Wyoming. Gasoline consumption by county. Published monthly.
Series 21-24: Employment Security Commission of Wyoming. Labor Force Trends. Published quarterly.

followed the Overland Trail, and in later years, the Union Pacific Railroad laid its tracks along the same general route.

The coming of the Union Pacific Railroad was a hell-for-leather era in Carbon County history. Rail camps sprang up overnight, and just as quickly, disappeared. The Brownsville camp grew to a population of 1,300 in just five days. And as the Brownsville population moved on to the Benton camp, the Benton camp reached a population of 3,000 in just two weeks.

But the coming of the railroad in late 1868 also carried with it the seeds of greater social stability, since for the first time permanent settlements not related to fur trading or to military posts began to appear.

One major factor that influenced Union Pacific officials to lay track through southern Wyoming (rather than taking a more northerly route up the North Platte River and along the Oregon Trail) was the presence of coal deposits near Hanna and near Rock Springs. This permitted the railroad to develop its own coal for steam locomotive use, rather than relying on distant sources of supply. The first of the Union Pacific-related coal communities established in Carbon County was the community of Carbon, located south of Hanna. During its heyday, six mines operated in the vicinity of Carbon, employing 600 miners. The mines were at first operated by the Wyoming Coal and Mining Company, and later by the Union Pacific Coal Company. In 1874 and 1875, one-fourth of all freight handled by the Union Pacific Railroad was Wyoming coal, much of it for use by the railroad itself.

Following mine disasters, the focus of the Union Pacific Coal Company shifted from Carbon to Hanna. The town of Carbon was completely closed in 1902 when the Union Pacific moved the location of its mainline. Hanna and Rock Springs thus became the Union Pacific's principle coal-mining communities.

The town of Rawlins also owes its existence to the Union Pacific Railroad. Survey crews working in advance of track-laying operations located badly needed freshwater springs and called the area "Rawlins Spring" (after General John A. Rawlins). The community which grew up beside the spring, at first called Rawlins Spring, was later shortened to Rawlins. Rawlins soon became a division point on the Union Pacific Railroad and was designated the county seat when Carbon County was officially created on December 16, 1868 by the Dakota Legislative Assembly.

Coal-mining in the Hanna Basin flourished, providing coal for the railroad's steam locomotives. It wasn't until the late 1940's that coal mining began its most serious decline, as the Union Pacific began to convert from steam engines to diesel-electric engines.

In the early years, lumbering to provide ties for the railroad also was an important industry. Ties cut in the Medicine Bow and Sierra Madre mountains were floated down the North Platte River to the Union Pacific right-of-way.

In addition, the growth in cattle and sheep ranching was strongly influenced by the coming of the railroad. The prime grazing lands of the high plains were opened up, and Medicine Bow became a major livestock-shipping center.

During the late 1890's, copper mining sparked a brief economic boom in Carbon County. The Grand Encampment Mining District (including the town of Encampment) was a copper mining and smelting center until 1908, when the smelter was partly destroyed by fire and depressed copper prices resulted in the demise of the industry.

Oil production began in the county during the 1920's. A refinery was constructed in 1925 at the present site of Sinclair. During the 1930's, the Seminoe Dam was constructed, providing hydroelectric power, irrigation water, and flood control.

Uranium was discovered in the Shirley Basin during the 1960's, and Petrotomics developed a large mine and milling operation. Utah Construction Company followed, building a mill in 1972.

Coal mining was revived in the Hanna Basin during the early 1970's, as new markets emerged for Wyoming coal. Hastened by federal air quality regulations, midwestern electric utilities found it desirable to use Wyoming's low-sulphur coal in order to reduce air pollutants.

Tourism also has been a factor in Carbon County's economic development, expanding as major national transportation arteries have linked the county with the rest of the country. U.S. Highway 30, and later Interstate 80, both are routed through Carbon County.

NATURAL RESOURCES

Minerals

Carbon County, which derived its name from the large coal deposits underlying the area, contains an estimated 4.9 billion tons of total coal reserves. Most of this total reserve is located in the Hanna coal field, a 750-square-mile area which includes the Hanna and Carbon basins. Glass and Roberts (1979) estimated that 674.31 million tons of strippable coal remained in the Hanna coal field as of January 1, 1978.

Smaller coal reserves can be found in the Rock Creek coal field southeast of Hanna. In addition, the Green River coal region extends into western Carbon County, and sizable coal reserves are located between Creston Junction (in eastern Sweetwater County) and Baggs.

In 1981, 8,352,914 tons of coal were mined in Carbon County, with a total assessed value of $158,519,134. The Arch Minerals Seminoe #2 Mine was the largest producer, with total production of 2,731,511 tons and an assessed value of $50,582,954. Second largest was the Arch Minerals Medicine Bow Coal Company Mine, with total production of 2,023,703 tons and an assessed value of $41,384,726. During 1981, six coal mines were in production, all in the Hanna area.

Total 1981 production was down nearly 1.5 million tons from 1980 production. Two mines, the Seminoe #1 and the Medicine Bow Coal Company Mine, were shutdown during the year. The Department of Economic Planning and Development (DEPAD) predicts that coal production in Carbon County will continue to decline in the near-term, the result of the unfavorable market conditions and difficulties associated with mining Carbon County coal.

Total Carbon County coal production in 1982 was 5,052,927 tons, with an assessed value of $121,047,062. The largest producing mine was the Carbon County Coal Company's Carbon #1 Mine, with total production of 1,226,083 tons and an assessed value of $37,456,836.

Closures and lost contracts have plagued Carbon County's coal industry. As mentioned, the Arch Minerals Seminoe #1 Mine was closed in 1981 until market conditions improve. Operations are on standby at Energy Development Company's underground mine. In addition, Dale Hoffman, minerals analyst for DEPAD, reported that the Rosebud Mine, operated by Peter Kiewit, lost a contract that accounted for approximately one-half of its annual production.

Adverse business conditions have cast doubt on the future of several proposed coal developments. It is doubtful, for example, that Energy Development's proposed North Knobs Mine will be opened in the foreseeable future. Rocky Mountain Energy's proposed Atlantic Rim Mine needs a federal coal lease, and no development is envisioned before 1985 at the earliest. Rocky Mountain Energy's proposed Red Rim Mine also needs a federal coal lease, and no development is expected before 1987. The Red Rim project recently was embroiled in controversy over possible mining in important antelope habitat.

Other proposed developments include Edison Development Company's Carbon Basin Mine, scheduled to open in 1991, and the NERCO (Pacific Power and Light) Cherokee/Crescon Mine to be located in Carbon and Sweetwater counties.

If Rocky Mountain Energy's Corral Canyon Mine comes to fruition, it will be the result of a three-way property exchange. Rocky Mountain Energy would acquire private lands within Teton National Park. In turn, these lands would be transferred to the National Park Service, in exchange for 3¼ sections of unleased federal coal in Carbon County. Preparation of permit applications and marketing efforts currently are underway.

Construction on the Centennial Coal Company Mine near Elk Mountain could begin as early as May 1984, provided a land quality permit is obtained from the Department of Environmental Quality. The mine, which would begin production in 1985, would employ 110 workers at the outset.

In addition to coal, Carbon County contains substantial uranium deposits. It is estimated that 50 percent of Wyoming's probable yellowcake reserves are located in Fremont and Carbon counties.

In recent years, the uranium industry has been mired in a depression. A number of factors have contributed to falling prices and oversupplies. A licensing moratorium following the Three-Mile Island accident, delays and cancellations in plant construction due to higher-than-expected costs and lower-than-expected demand for electricity, and inventory liquidations by utilities in competition with producers all have contributed to the depressed state of the industry.

The decline in Carbon County's uranium industry became apparent in 1981, when a 30 percent drop in production was registered. In 1982, the decline in production continued, dropping by 32 percent. And few encouraging signs are in sight. DEPAD predicts that further production declines are likely through the mid-1980's.

In 1981, the major uranium producer in Carbon County was the Petrotomics Shirley Basin Mine, yielding 373,881 tons of ore with an assessed value of $24,115,325. The second largest producer was the Pathfinder Mines Corporation Shirley Basin Mine, with total production of 466,348 tons of ore and an assessed value of $18,150,264. In 1982, production at the Petrotomics Shirley Basin Mine dropped to 315,602 tons (with an assessed value of $22,183,665), while production at the Pathfinder Shirley Basin Mine dropped to 296,082 tons (with an assessed value of $9,690,764).

In terms of assessed value, natural gas has been the most valuable minerals commodity produced in Carbon County in recent years. In 1981, 52,026,038 mcf were produced (a record high), with an assessed value of $186,661,292. In 1982, production declined by 9.32 percent, to 47,175,586 mcf.

Oil production also reached record-high levels in 1981 (3,234,000 barrels), before experiencing a decline in 1982 (down 11.99 percent). The trend over the past four years, however, indicates a rather stable pattern in Carbon County's oil industry. DEPAD predicts that despite slowdowns in drilling activity, oil production should remain fairly constant in the near-term.

With the completion of several new pipelines, Carbon County finds itself at a nexus of oil and gas processing facilities. The Sinclair Oil Refinery, with a rated capacity of 72,000 barrels, produces such products as gasoline, kerosene, #2 diesel fuel, and railroad fuel. Three gas-processing plants are also active. Colorado Interstate Gas Company's Rawlins Plant has a capacity of 220,000 mcf per day, Cordillera Corporation's Sugar Creek Plant has a capacity of 3,000 mcf per day (the plant shuts down during the winter), and Marathon Oil Company's Rock River Plant has a capacity of 500 mcf per day.

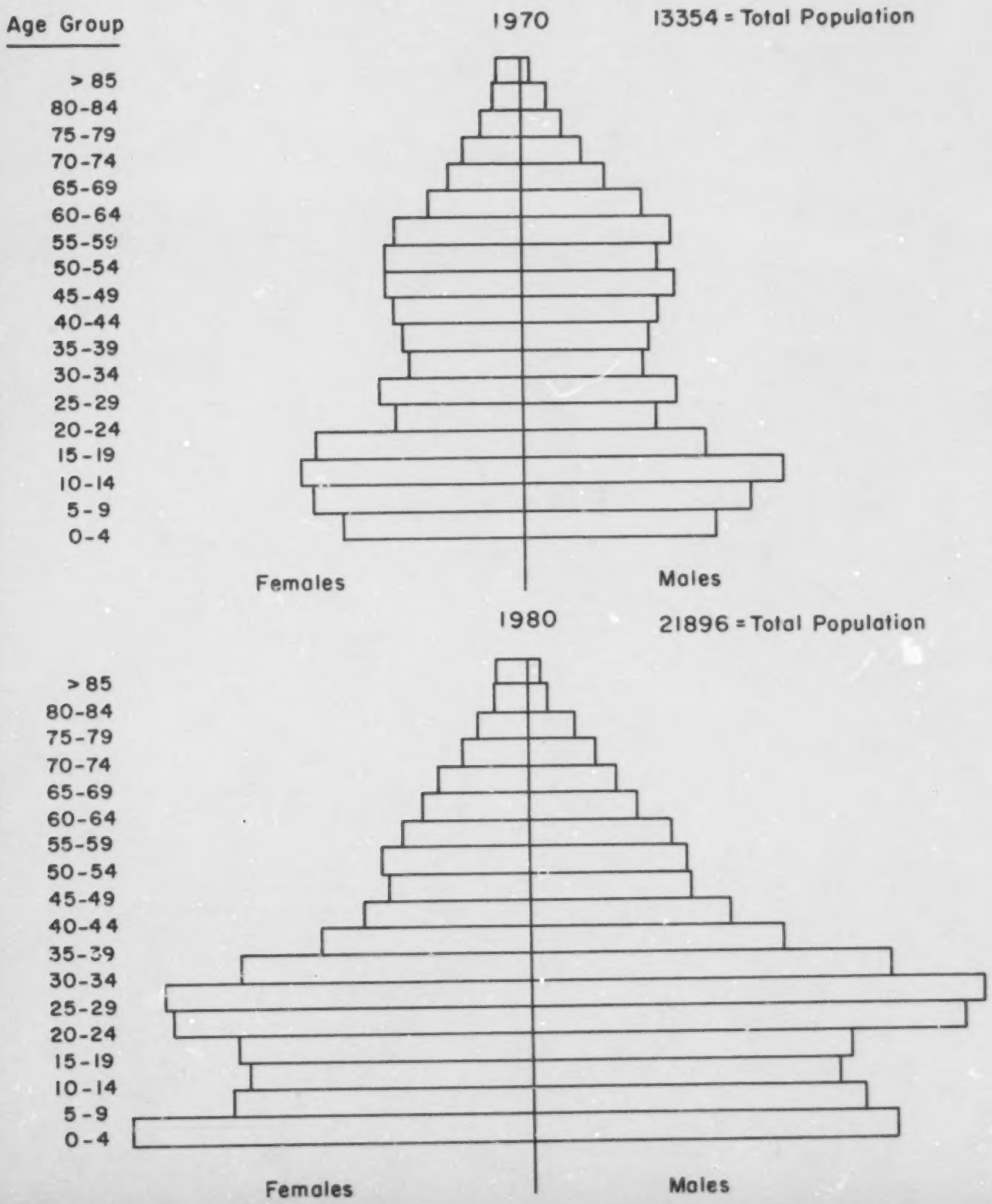
A variety of other minerals are of minor economic importance to Carbon County. These include gravel, copper, clays, limestone, jade, and trona.

Water

Surfacewater supplies in Carbon County are good, thanks to the North Platte River and its tributaries. Some of the largest federal water projects in Wyoming are located on the North Platte. The Seminoe Reservoir, constructed between 1936-1939, is the main feature of the North Platte water-storage system in Carbon County. Both the North Platte River and the Medicine Bow River empty into Seminoe Reservoir. The reservoir has a total surface area of 20,050 acres; it is 27 miles in length, and when filled to capacity, holds 980,000 acre-feet of water. In addition to providing water for agricultural uses, the Seminoe Reservoir provides excellent fishing, boating, and other recreational opportunities.

Groundwater is present at depths of less than 500 feet in the North Platte River Basin. Groundwater is associated with alluvium

Figure 1: Carbon County ; Age by Sex in 5-year Age Groups , 1970 , 1980



deposits, terrace deposits, and consolidated sandstones; it is used extensively throughout the basin in a variety of ways, supplying water to domestic, agricultural, and industrial users.

The Rawlins municipal water system has a capacity of 4.8 million gallons per day, with a peak demand capacity of 6.3 million gallons per day and a storage capacity of 530 million gallons. Rawlins draws a majority of its water from springs in the Sage Creek Basin. Water is also drawn from the North Platte River at Ft. Steele. Hanna relies on spring water as a source of supply, with a total storage capacity of 54 million gallons. Saratoga relies on water from the North Platte River, while Medicine Bow relies on groundwater from the Madison-Casper Formation.

Timber

About 14 percent of Carbon County is forestland, most of which lies within the boundaries of the Medicine Bow National Forest, and encompasses approximately 720,000 acres. Of the timber cut during 1979, 98 percent was on National Forest land, while only 2 percent was on private land. Total 1979 production was 21.218 million board-feet from two operating mills. The major species cut were lodgepole pine, englemann spruce, and alpine fur.

THE PEOPLE

Carbon County has experienced cycles of "boom and bust" since the coming of the railroad. In the summer of 1868, as many as 6,000 men were employed by the Union Pacific in building the railroad across Wyoming. Dozens of towns were spawned. Many disappeared as quickly as they sprang up. Others, including Rawlins and Hanna, became permanent communities.

Between 1920 and 1950, the population of Carbon County increased steadily. With the conversion of the railroad to diesel power--and the concomitant decline in the local coal industry--Carbon County entered a 20-year period of population decline. In 1960, the population of Carbon County was 14,937, a 5.1 percent decrease from 1950. However, the town of Rawlins continued to grow during the period, registering a 20.9 percent increase in population.

Between 1960 and 1970, the population of Carbon County continued to decrease, dropping from 14,937 to 13,354 persons. The decrease was not unique to Carbon County, but was typical of population losses occurring throughout Wyoming during the decade of the 1960's. Not surprisingly, the largest population decrease occurred in Rawlins (the largest community); only Medicine Bow and Saratoga registered population increases during the decade.

With the resurgence of the coal industry, Carbon County began growing once again during the decade of the 1970's. In 1980, total population for the county was 21,896, according to U.S. Census figures, representing a 63.97 percent population increase since 1970.

Carbon County's economic fate is tied to the minerals industries. Growth thus can be highly volatile. The world price of oil (and its effects on the coal market), air pollution standards, and the general state of the world economy are all reflected in Carbon County's economic and population (as a result of

Table 2: Personal Income by Major Sources (Thousands of Dollars)*

Source	Wyoming 1981		Carbon County 1981		Carbon County 1971	
	$	% of Total	$	% of Total	$	% of Total
Farm	42703	.94	2183	.93	5708	10.92
Ag., Serv., For., Fish, and Other	14720	.32	529	.22	D#	-----
Mining	1167155	25.73	98424	41.81	9839	18.82
Construction	524627	11.56	16191	6.88	2507	4.79
Manufacturing	225847	4.98	13598	5.78	4501	8.61
Transportation & Public Utilites	471293	10.39	27518	11.69	9087	17.38
Wholesale Trade	251435	5.54	4772	2.03	D#	-----
Retail Trade	412226	9.09	17688	7.51	5926	11.33
Finance, Insurance, & Real Estate	143506	3.16	5380	2.29	955	1.83
Services	505006	11.13	15678	6.66	4177	7.99
Government	778058	17.15	33472	14.22	8569	16.39
Total	4536576		235433		52285	

*REIS data
#Not shown to avoid disclosure of confidential information. Data are included.

in-migration or out-migration) fortunes.

Because such factors as the price of oil and the state of the world economy cannot be precisely predicted, the Carbon County Planning and Development Office has developed three scenarios with respect to growth. The low growth scenario presumes a continued slump in economic activity. The moderation growth scenario presumes a gradual resumption of relatively stable business conditions. The high growth scenario presumes complete fruition of a number of major projects, including massive coal development in the Savery area, development of a synfuels project west of Rawlins, and the development of a "wind farm" near Medicine Bow.

Under the high growth scenario, a turnaround is predicted beginning this year, with population reaching 39,799 in 1995, primarily the result of the synfuels plant. Under the moderate growth scenario, a near-term turnaround is predicted, with a 7-year growth period and a leveling out of population at about 23,000 during the 1990's. Under the low growth scenario, population is expected to decline to less than 16,000 persons in 1989, with slow increases to about 18,000 by the year 2000.

The recent shelving of synfuels projects (for example, cancellation of the Hampshire Energy project in Campbell County), a soft coal market, and the continuing depression in the uranium industry militate against the high growth scenario. On the other hand, the low growth scenario may be too pessimistic, especially as the economy continues to improve or if new coal projects come on-line (or if existing facilities resume more normal production levels). Under the moderate growth scenario, the town of Hanna would be expected to increase in population from 1,433 in 1983 to 3,613 in 1990, Rawlins would increase from 10,950 in 1983 to 12,135 in 1990, and Medicine Bow would increase from 372 in 1983 to 561 in 1990.

Between 1970 and 1980, the population composition of Carbon County changed, with the population becoming younger. In 1970, the median age was 29.7 years; by 1980, the median age had dropped to 26.5 years. This shift is particularly striking in the 20-24 year old and the 25-29 year old cohorts for both males and females (see figure 1). The change can be attributed to the numbers of young workers who migrated into the county during the 1970's as a result of energy development and related activities.

The increasingly youthful population might be reflected in other population characteristics as well. Between 1971 and 1981, the death rate in Carbon County dropped from 10.93 deaths per thousand population to 6.81 deaths per thousand, while the number of births increased from 20.07 per thousand population to 23.63 per thousand. At the same time, the number of marriages increased from 11.36 per thousand population in 1971 to 14.07 per thousand in 1981, while the number of divorces increased from 4.86 per thousand population to 7.61 per thousand.

The number of public assistance recipients increased over the decade of the 1970's, but not remarkably, given the population growth over the same period. In 1972, 1,378 persons received aid-to-families-with-dependent-children payments, while in 1982 1,714 persons received such assistance. By the same token, 759 persons received food stamps in 1972, while 812 persons received food stamps in 1982. During the same period, total population in the county increased from 14,500 to 23,883.

THE ECONOMY

In 1971, the Carbon County economy was rather diversified, with several sectors contributing about equally to county personal income and total employment. As sources of personal income, mining contributed 18.82 percent to the county total, transportation and utilities contributed 17.38 percent, and government contributed 16.39 percent. As sources of employment, the government sector was first (contributing 23.77 percent), followed by retail trade (16.03 percent), and services (13.97 percent).

With expansion in the minerals industries during the decade of the 1970's, Carbon County's economy increasingly became dominated by energy resources extraction activities. By 1981, mining contributed 41.81 percent to the county's total personal income, more than twice as much as in 1971. Government contributed 14.22 percent, and transportation and public utilities contributed 11.69 percent. In terms of employment, mining was responsible for 26.49 percent of total county employment by 1981, followed by government (19.42 percent) and retail trade (13.33 percent).

While mining activities are focused around Hanna, government and service activities are centered in Rawlins. Rawlins is the county seat; in addition, both a Bureau of Land Management (BLM) district office and the Wyoming State Penitentiary are located in Rawlins.

While the transportation and public utilities sector decreased in importance as a contributor to total personal income between 1971 and 1981, it still ranked third among all contributors. Rawlins is a crew-change point on the Union Pacific Railroad, and many railroad employees live in Rawlins.

Interstate 80 also crosses Carbon County. Large amounts of revenue are generated in the local economy due to the presence of Interstate 80. Other highways include Highway 30 (serving Rawlins, Hanna, and Medicine Bow) and Highway 287 (to Lamont and points northwest, including Yellowstone and Grand Teton national parks).

Several truck freighting companies operate in Carbon County, including Salt Creek Freightways, Neuman Transit Company, and North Park Transportation.

Throughout its history, Carbon County has been an important livestock producer. In 1981, according to the Crop and Livestock Reporting Service, Carbon County ranked second in state cattle production and fourth in state sheep production. Dryland wheat, barley, oats, and hay also are produced. In 1981, Carbon County ranked third in state hay production.

Tourism has emerged as a vital part of the Carbon County economy. With its wealth of recreational opportunities--coupled with its strategic position along Interstate 80 and routes to Yellowstone National Park--Carbon County received $56,103,000 from travel-related

expenditures during 1981, according to U.S. Travel Data Center figures, fifth highest total in the state. Wages and salaries paid to persons directly serving travelers amounted to $9,951,000, generating 1,620 jobs. State tax revenue generated by travel spending was $1,825,000, while local tax revenue was $826,000.

OUTLOOK

Carbon County's economic fate is closely linked to the fortunes of oil and gas, coal, and uranium development. And activity in such industries can be difficult to predict.

It might be assumed that activity in such industries will increase as the national economy improves. However, market prices, national politics, and conservation are just some of the influences that can affect the outlook rather quickly--either positively or adversely. In the case of coal development, the focus in recent years has shifted strongly toward the Powder River Basin and away from the coal regions of southern Wyoming--due in large measure to more favorable mining conditions and higher yields per miner obtained in the Powder River Basin.

For the time being, at least, low growth and little economic expansion is forecast for Carbon County.

S.T. Mast and Ruth Tebbutt, IPR

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# #

Welcome to Hard Times

Boom-Bust Cycles Nothing New for Carbon County

It is boom or it is bust. Just now, it is mostly bust.

But then, Carbon County is no stranger to the manic-depressive swings that often characterize economies dependent upon single industries. Carbon County is the stepchild of a boom, spawned in the wake of the Union Pacific Railroad. Hanna and Elmo exist because the railroad needed coal. In 1903, and again in 1908, major mine disasters at the U.P. #1 Mine left the towns devastated. But the people rebuilt and equilibrium was restored.

Then came the Great Depression and more hard times. With World War II there was new demand for coal, but only for a few years. In 1947, the railroad switched from coal to diesel locomotives; in 1954, the mines closed. An exodus began. The population of Hanna dropped from 1,326 in 1950, to 625 in 1960, to only 460 by 1970.

By the early 1970's, a new boom began, almost too much too fast, like a place gorged on prosperity. Planners could hardly keep pace with the population increases, as workers fanned out from Hanna, to Saratoga, to Elk Mountain, to Rawlins, in search of housing. Then bust again.

When asked about the condition of Hanna's economy, Mayor LaVonne Tlustos simply laughed. She has seen no improvement in months. "I don't paint any rosy picture for the near future," she says. But, she adds, "I think we will be back. It's a question of when."

It's a question beyond the power of Carbon County to answer, inextricably bound up in politics and economics, both foreign and domestic.

Legislation on acid rain that makes Wyoming's low-sulphur coal a high-demand commodity, another Mideast oil embargo, an era of national prosperity, many things, or perhaps a combination of things, could put the bloom back on more quickly than it faded, says Carbon County Planner Frank Alguire. But who knows what and who knows when. For now, at least, there is little certain.

In projecting population levels for the county, Alguire found it impractical to postulate just one unbending trendline. He prepared three scenarios--high, moderate, and low growth patterns--all hooked to the unknowns, upon future politics and policy, upon the uncertainties of world economics. For now, at least, Alguire says he would stick with the low growth thesis.

At the time he was preparing his projections, Alguire talked with many energy company officials and found "pessimism right down to the last man. Now there seems to be some guarded optimism, but not much substance to this optimism."

If the Red Rim project gets launched, coal employment would turn up or if the big tract south of Hanna is developed, or if Union Oil gets a Korean contract for yellowcake, ifs and more ifs. "It's very frustrating for us to deal with," Alguire says. "But when it comes down the pike, we are going to get real busy." But, Alguire admits, "it's a continual guessing game, the ifs and the whens."

Alguire says he has heard of recent figures that project a doubling of employment in Carbon County by the year 2000. "It might double by 2000 and be right back down where it is now by 2005," he says.

Such is the history of Carbon County.

S.T. Mast, IPR

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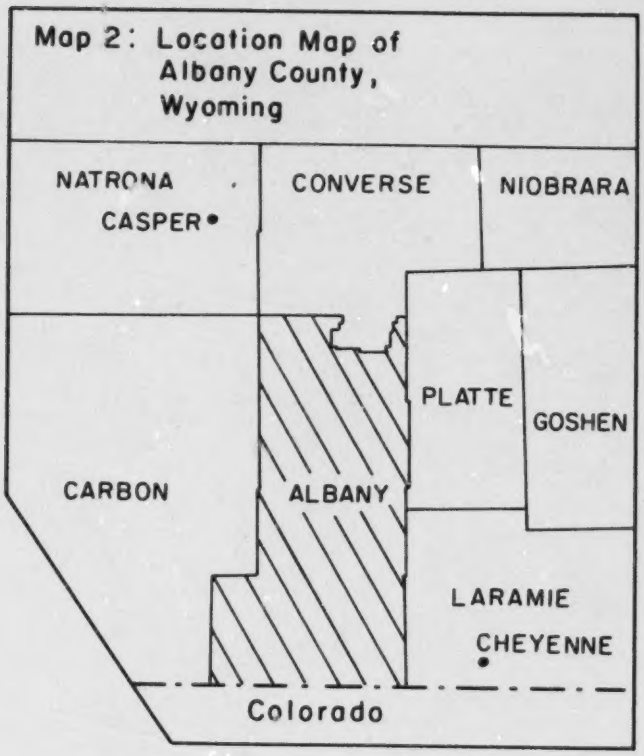


Albany County Profile

PHYSICAL CHARACTERISTICS AND CLIMATE

Albany County is located in southeastern Wyoming. It is bordered to the north by Converse County, Wyoming, to the south by the state of Colorado, to the west by Carbon County, and to the east by Laramie and Platte counties.

Albany County comprises a land area of 2,765,440 acres, or 4,321 square miles, eighth largest county in Wyoming. Of the total acreage, 715,325 acres are owned by the federal government, 213,584 acres are owned by state and local governments, and 1,816,691 acres are privately owned.

Laramie is the largest community and the county seat. Other communities include Rock River, Foxpark, Bosler, and Centennial.

Albany County contains both mountains and extensive high plains. The central plains area is about 90 miles long and 30 miles wide, and is bordered by the Laramie Mountains to the east and the Medicine Bow Mountains to the west. Elevations range from 7,000 feet on the plains to 10,272-foot Laramie Peak, in the extreme northeastern portion of the county.

The principal stream in Albany County is the Big Laramie River, a tributary of the North Platte River.

Three distinct climatic zones exist in Albany County: the Snowy Range zone, the Laramie Range zone, and the Laramie Plains zone.

The Snowy Range zone encompasses the mountainous area of western Albany County, in which elevations range from 8,000 feet to 12,000 feet (at Medicine Bow Peak in adjacent Carbon County). Annual precipitation ranges from 14 inches to over 20 inches, occurring mostly as snowfall. No dependable, frost-free growing season exists.

The Laramie Range zone also is a mountainous area--located in the eastern portions of the county--with elevations ranging from 6,000 feet to 10,000 feet. Annual precipitation ranges from 14 inches to slightly more than 16 inches. The frost-free growing season averages from 60 days to 100 days in length.

The Laramie Plains zone is characterized by gently rolling hills. Elevations range from 7,000 feet to 8,000 feet, with the highest elevations in the southern portion of the county. Annual precipitation on the plains ranges from 9 inches to 13 inches, about half of which falls during the growing season. The last frost occurs about June 1 and the first frost occurs about September 10. Strong winds are common on the plains, the average velocity of which is 11 mph.

For the county overall, the average date of the last freeze is May 29, while the average date of the first freeze is September 19. The county averages 40.70 inches of snowfall per year and 11.14 inches of total precipitation. The mean annual temperature for the county is

42.70°F.

HISTORY

Archeological sites in Albany County indicate the presence of prehistoric hunting cultures as early as 8,000 B.C. The first people apparently were associated with the Folsom culture, which was present in much of North America east of the Rocky Mountains.

When white men first arrived in the area during the mid-1700's, the area was occupied chiefly by the Cheyenne and Arapahoe tribes. The tribes were nomadic, following the buffalo through areas of abundant water and grass.

Records concerning the first white men in the area are scanty. One of the first white men in the county, however, was Jacques LaRamee, a French Canadian trapper. About 1820, LaRamee began a journey up the Laramie River, a journey from which he never returned (reputedly, he was killed by hostile Indians).

In 1825, General William Henry Ashley led a party from Fort Collins into the Laramie Basin and described the abundant wildlife in the area. The first official exploration of the county was led by Captain John C. Fremont in 1842.

During the 1850's, trappers and military men continued to trickle into the county, but emigrants on their way west skirted the county. During the 1860's, however, things began to change. In 1862, Ben Holladay moved his Overland Stage to a more southerly route through the Laramie Basin. Stage stations were established at Willow Springs, Big Laramie Crossing, Little Laramie Crossing, and Cooper Lake. Once the stage stations were established, emigrants began using the route in large numbers. Notions that the harsh winters of the Laramie Basin precluded livestock ranching soon were discredited and a few pioneer ranches were established. The first livestock producers were "road ranchers," who supplied meat and other products to the stage stations and emigrants.

In 1866, Fort Halleck was moved from Carbon County to a location south of Laramie (later renamed Fort Sanders). The same year, General Grenville M. Dodge began surveying routes for the transcontinental railroad. Dodge recommended a route over the Laramie Range and across southern Wyoming. Work began the following year, and by the winter of 1867-1868, the tracks had reached as far as Sherman; Dale Creek Bridge was completed in the spring, and on May 10, 1868, the first train entered Laramie.

The coming of the railroad was an epic event in the history of Albany County. From huge tracts of land granted by Congress, the Union Pacific Railroad platted towns, both to develop the West and to provide railroad business. One such town was Laramie City, laid out on the banks of the Laramie River, under the protection of Fort Sanders and within reach of good water.

On December 16, 1868, the Dakota Legislature created Albany County and designated Laramie the county seat. Charles Bradley, a territorial legislator, named the county in honor of the capitol of his native state, New York.

In the early years, the Albany County economy remained largely tied to the railroad. In 1874, Laramie became the site of a Union Pacific steel-rolling mill. The mill employed 180 persons in 1890. In addition, the Union Pacific located other operations in Laramie, including a tie and timber treating plant. In later years, Laramie became the site of a massive roundhouse complex, until the conversion of coal-powered locomotives to diesel forced its closure.

A variety of smaller industries sprang up as well. During the 1880's, a glass factory, a tannery, a flour mill, a brickyard-sandstone quarry, a chemical works, a cigar factory, and sawmill operations added diversity to the local economy.

Albany County also became an increasingly important livestock center. In 1871, Texas Longhorns were trailed into the county to fatten on the open range. Eastern and European capitalists arrived in Laramie and staked out prime rangelands. However, the severe winter of 1887, coupled with depressed market prices, forced most of the investors out.

A territorial penitentiary was opened in Laramie in 1873 and housed federal prisoners intermittently until it was closed in 1907. The fledgling University of Wyoming was founded in 1887, consisting of just one building, five professors, two tutors, and 42 students.

During the late 1880's and early 1900's, a series of mining booms occurred in Albany County and adjacent areas, but no significant mineral lodes were discovered. The Silver Crown Mining District, located 13 miles west of Cheyenne, experienced a gold boom in 1885, but the veins proved uneconomical to mine. Gold was discovered in 1892 near Centennial, and later, at Keystone and Albany. While some gold, silver, and copper was recovered, the operations proved uneconomical for long-term development.

Other short-lived mineral booms in the mountains occurred in the Grand Encampment Mining District, and in the 1920's, at Platinum City. The federal government sold the assets of Platinum City for taxes in 1938.

During the early 1900's, efforts were made to irrigate the Laramie Plains. Due to the short growing season, large-scale irrigation failed. Today, most irrigation is employed to augment livestock production, by watering hay meadows and pasturelands.

Laramie continued to develop as a transportation hub. The Laramie, North Park, and Walden Railroad (controlled by the Union Pacific) was established, a shortline serving Centennial, Foxpark, and Walden, Colorado. At the turn of the century, prior to the advent of modern highways, the Laramie-Centennial-Rambler Stage Line operated between Laramie and the Grand Encampment Mining District.

After World War I, oil was discovered in Albany County, the most significant find at the Rock Creek field. A number of oil camps were established, including Arlington and McFadden. In 1920-1921, refineries were constructed by Midwest Refining Company and by Standard Oil Company of Indiana. Most of the area oil fields were developed during the 1920's and 1930's.

Today, the local economy depends largely upon the University of Wyoming. The importance

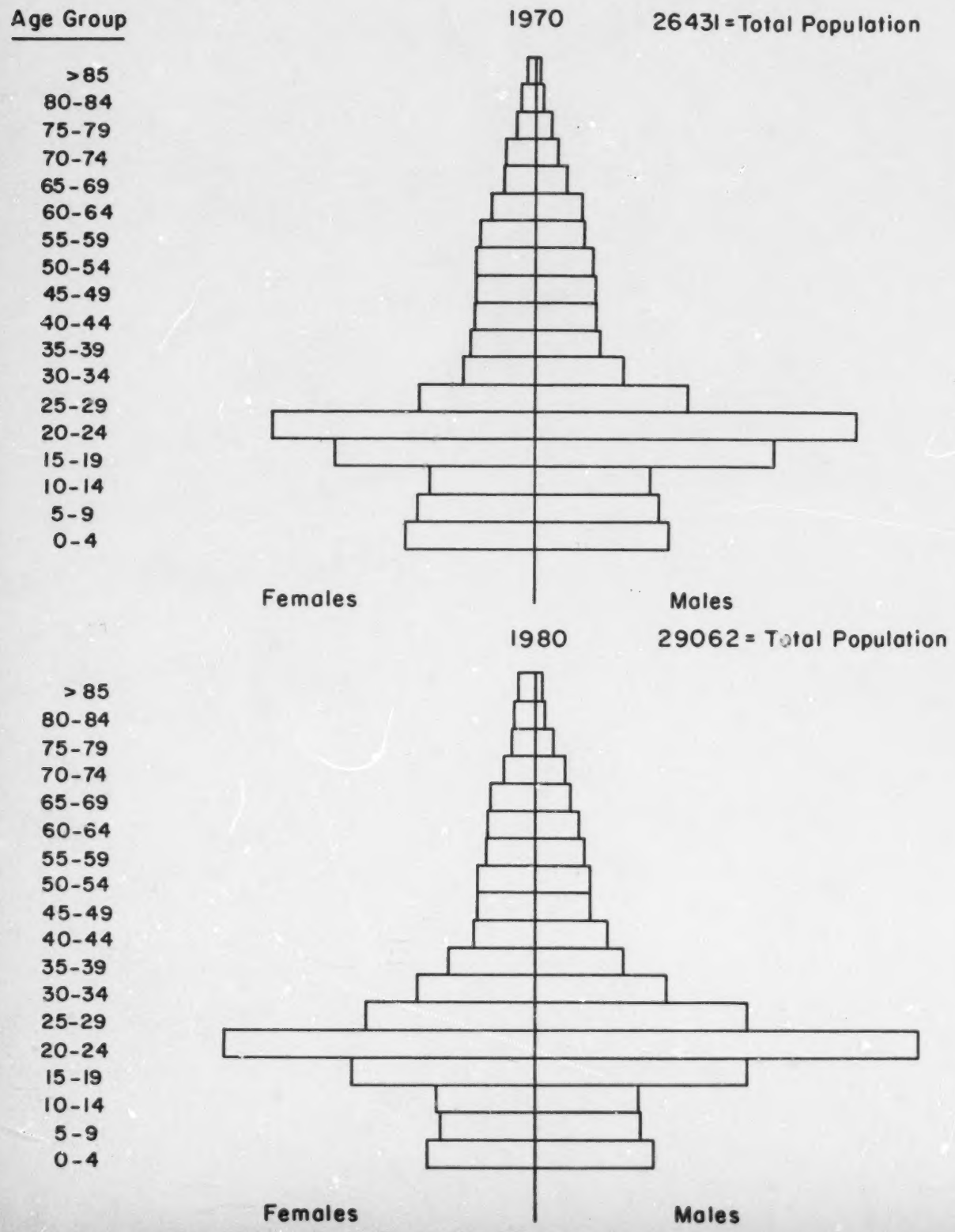
Table 3: Albany County Profile

Calendar Years	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
1. Births	501.	445.	425.	394.	413.	379.	420.	427.	480.	467.	543.	477.[1]
2. Deaths	166.	164.	168.	161.	146.	159.	168.	160.	142.	172.	154.	148.[1]
3. Divorces	106.	141.	132.	173.	171.	144.	178.	153.	164.	217.	217.	186.[1]
4. Marriages	266.	317.	291.	342.	294.	294.	333.	314.	338.	328.	335.	333.[1]
5. Population[2]	26500.	26800.	26700.	27200.	26900.	27600.	27900.	28100.	28800.	29062.	30300.	30410.
6. Oil Production (HBBL)	2477.	2447.	2760.	2339.	2015.	1996.	1807.	1595.	1464.	1546.	1554.	1436.
7. Valuation on Oil Production (H$)	7389.	7212.	9586.	14050.	13524.	13497.	13199.	13222.	18925.	34730.	53543.	42757.
Fiscal Years	**1971**	**1972**	**1973**	**1974**	**1975**	**1976**	**1977**	**1978**	**1979**	**1980**	**1981**	**1982**
8. AFDC Recipients	INA	585.	740.	978.	1002.	1044.	1226.	1447.	1552.	1830.	2341.	2083.
9. Food Stamp Recipients	463.	400.	389.	489.	583.	554.	520.	548.	646.	1021.	1198.	1196.
10. AFDC Payments ($)	INA	96644.	122526.	158112.	150642.	179714.	235543.	288521.	362417.	470789.	621529.	605874.
Calendar Quarters	**4/80**	**1/81**	**2/81**	**3/81**	**4/81**	**1/82**	**2/82**	**3/82**	**4/82**	**1/83**	**2/83**	**3/83**
11. Hotel, Motel, & Camp Sales & Use Tax Collections ($)	35491.	30063.	31943.	55903.	55206.	36835.	38739.	69901.	41746.	32291.	38315.	68423.
12. Total Sales & Use Tax Collections ($)	1370524.	1357245.	1360675.	1702033.	1515140.	1529663.	1139843.	1598291.	1512438.	1385003.	1388192.	1521663.
13. Liquor Sales ($)	565041.	383454.	416652.	495691.	576109.	428760.	419450.	469041.	538149.	419005.	398337.	463191.[3]
14. Gasoline Gallonage (GL)	4351893.	3420936.	6427543.	5298139.	4256005.	3480430.	4637755.	5579197.	3778976.	3357358.	4363361.	5230000.[3]
15. Civilian Labor Force	13873.	12984.	13926.	13782.	13461.	13294.	13453.	13099.	13568.	13624.	14102.	13804.
16. Employment	13161.	12168.	13130.	13078.	12703.	12672.	12787.	12539.	12818.	12493.	13130.	12990.
17. Unemployment	712.	815.	796.	704.	758.	623.	686.	560.	750.	1131.	973.	814.
18. Unemployment Rate	5.1	6.3	5.7	5.1	5.6	4.7	5.0	4.3	5.5	8.3	6.9	5.9

[1] Provisional data from the Wyoming Department of Public Health, Division of Vital Statistics.
[2] 1971 through 1979 and 1981 are estimates made by the U.S. Bureau of the Census, not an actual count as in 1980. 1982 is an estimate made by the Department of Administration and Fiscal Control.
[3] Estimate based on trend and actual data for July and August.

Sources:
Series 1-4: Wyoming Department of Public Health, Division of Vital Statistics. "Vital Statistics." Published yearly.
Series 5: Regional Economics Information System, Bureau of Economic Analysis. Population data included in table of "Personal Income by Major Sources."
Series 6-7: Annual Report: Department of Revenue and Taxation, Ad Valorem Tax Division. Fiscal year report.
Series 8-10: Wyoming Division of Public Assistance and Social Services. Management Information and Statistical Report. Published biannually.
Series 11: Sales and Use Tax Summary by County. Hotel, Motel, and Camp Sales Tax Collections. Wyoming Department of Revenue, Sales and Use Tax Division. Published monthly.
Series 12: Net Collections by Business Class by County. Wyoming Department of Revenue, Sales and Use Tax Division. Published monthly.
Series 13: Sales by County-City. Wyoming State Liquor Commission. Published monthly.
Series 14: The Gasoline Gallonage Report. Petroleum Association of Wyoming. Gasoline consumption by county. Published monthly.
Series 15-18: Employment Security Commission of Wyoming. Labor Force Trends. Published quarterly.

Figure 2 : Albany County; Age by Sex in 5-year Age Groups, 1970, 1980



of the railroad has declined dramatically, especially since the closing of the roundhouse in the 1950's and the elimination of Laramie as a crew-change point in the early 1970's.

NATURAL RESOURCES

Minerals

Many different minerals can be found in Albany County, but only a few are present in sufficient concentrations to warrant mining. Thus, minerals production accounts for only a small portion of the total assessed valuation of the county. What little production there is has remained relatively constant in recent years (see table 3).

Total assessed minerals valuation in 1982 was $7,059,913, an increase of $1.8 million from 1981. Contributing to the increase was a $12 per barrel increase in oil valuation, rising from $22.46 per barrel in 1981 to $34.46 in 1982. However, actual oil production increased by only .48 percent during the same period.

In 1983, total assessed minerals valuation was down 27.25 percent from 1982, dropping to $5,135,932. Oil valuation dropped by $1,078,592 in 1983, as 1982 oil production dropped by 11,773 from 1981 production levels.

Gypsum and cement rock are produced by the Monolith Portland Cement Company in Laramie. In 1982, 19,237 tons of gypsum and 338,840 tons of cement rock were produced. Total 1983 valuation of all minerals excluding oil was $860,260.

Coal is present in Albany County, but less than 10 percent is bituminous coal in beds more than 14 inches thick. The remainder is subbituminous coal of unknown thickness, deeply buried, or in known beds less than 30 inches thick. The coal beds cover most of the plains area between Rock River and Bosler. No coal currently is being mined.

A variety of highly mineralized deposits occur on the east slope of the Medicine Bow Range between Centennial and Albany. However, none are found in sufficient quantities to justify large-scale mining operations. Among the many minerals located in Albany County are copper, silver, uranium, gold, zinc, arsenic, limestone, sandstone, manganese, magnesium sulphate, and sodium sulfate.

Water

Albany County is located within the North Platte River Basin. Many rivers and streams--including the Laramie River, the Little Laramie River, Rock Creek, and Sybille Creek--and several sizable lakes and reservoirs are located in the county.

The primary stream is the Laramie River, a tributary of the North Platte River. The stream flows for a distance of 182 miles, from its origins in the Colorado Rockies to its confluence with the North Platte River at Fort Laramie. Waters of the Laramie River are used for irrigation, for municipal use, and for recreation.

Groundwater is used extensively in the plains areas of the county. The alluvium along the course of the Laramie River is the single most important source of groundwater. Second in importance is the Casper Formation aquifer, developed mainly in the southern and eastern portions of the Laramie Basin.

Water for the city of Laramie is derived from wells, springs, and diversions from the Laramie River. The wells and springs produce adequate water throughout the winter, when consumption does not exceed 4.5 million gallons per day. During the summer, however, Laramie River water is required to help meet a demand that may reach 15 million gallons per day.

In 1981, the city of Laramie obtained the rights to additional Laramie River water by purchasing the 11,326-acre Monolith Ranch. The ranch includes an irrigation system, Simpson Springs, and Laramie River water rights through the Dowlin Ditch. It is the oldest water right on the Laramie River, and thus has first priority to use of the water.

Laramie is the only municipality using Laramie River water.

Timber

Albany County has many forested areas. Ponderosa pine, douglas fir, and juniper are found in the foothills. Aspen and pine are found in groves along the mountain slopes. Between elevations of 8,200 feet to 10,000 feet, the lodgepole pine predominates. Forests above 9,800 feet consist mainly of alpine fir and englemann spruce.

Most commercial timber operations in the county harvest lodgepole pine, although other species also are cut. The 1980 Wyoming Timber Industries Directory listed six active timber-products operations in the county.

THE PEOPLE

During the decade of the 1970's, the population of Albany County increased slowly, from 26,500 in 1971 to 30,300 in 1981. And according to population projections produced by the Department of Administration and Fiscal Control (DAFC), the slow growth pattern should continue well into the 1990's. DAFC projects that county population will reach 32,066 by 1985 and 34,690 by 1990.

Since 1930, growth in Albany County has been relatively uniform, devoid of the wide fluctuations that have characterized other parts of the state. Because the Albany County economy is not strongly influenced by minerals industry activities, it is less subject to the "boom and bust" cycles that have appeared elsewhere. The presence of the University of Wyoming as a major employer has been a stablizing factor.

The difference between state and Albany County growth patterns can be easily illustrated. Between 1960 and 1970, for example, the population of Laramie increased by 32.1 percent, while the population of the county overall increased by 24.1 percent. At the same time, the population of Wyoming as a whole increased by only 0.7 percent.

By the same token, while the state overall experienced a population boom between 1970 and 1980 (increasing by 41.26 percent, fueled by an upsurge in energy industry activities), the

population of Albany County increased by only 9.95 percent and the population of Laramie by only 5.47 percent.

The importance of the University of Wyoming in Laramie's population profile has increased with time. In 1930, total spring enrollment was 966; students made up 11.22 percent of the total city population. In 1960, students enrolled in the spring made up 19.98 percent of the total population, and in 1980, students made up 34.78 percent of the total city population during the spring.

The median age in Albany County increased slightly during the decade of the 1970's, from 23.2 years of age in 1970 to 24.5 years in 1980. In both 1970 and 1980, the largest cohort encompassed persons whose ages ranged from 20-24 years old, reflecting the influence of the University of Wyoming.

Birth rates remained relatively constant during the 1970's (decreasing from 18.91 per thousand population in 1971 to 17.92 per thousand in 1981), while the death rate also declined slightly (from 6.26 per thousand in 1971 to 5.08 in 1981). During the same period, both the marriage and divorce rates increased. The marriage rate increased from 10.04 per thousand in 1971 to 11.06 per thousand in 1981, while the divorce rate increased from 4.00 per thousand in 1971 to 7.16 in 1981.

Between 1972 and 1982, the number of aid-to-families-with-dependent-children recipients increased by more than might be suggested by population increases alone. While the population increased by only 13 percent, a fourfold increase in number of recipients was experienced, increasing from 585 in 1972 to 2,083 in 1982. The same held true for food stamp recipients, increasing from 400 in 1972 to 1,196 in 1982.

THE ECONOMY

Due largely to the presence of the University of Wyoming, Albany County's economy largely depends upon the government sector, a pattern that remained unaltered during the 1970's.

In 1971, the government sector ranked first among contributors to personal income, accounting for 42.48 percent of the total. Second in importance was retail trade (contributing 13.17 percent), followed by services (contributing 12.58 percent). In 1981, the government sector contributed 44.86 percent of the total personal income, followed by services (15.11 percent) and retail trade (11.66 percent). Transportation and public utilities (including once-important railroad income) contributed only 10.05 percent, farm income only .47 percent, and mining only .44 percent.

In terms of total employment, the government sector accounted for 5,151 jobs in 1981, followed by retail trade (accounting for 2,663 jobs) and services (accounting for 2,284 jobs).

Tourism is another important component of the economic mix and is influenced by Albany County's close proximity to the heavily-populated Front Range area of Colorado. In 1981, Albany County ranked seventh among Wyoming counties in travel expenditures, attracting some $40,797,000. Wages and salaries paid employees directly serving travelers amounted to $7,656,000, generating 1,137 jobs. State tax revenue generated by travel spending amounted to $1,220,000, while

Table 4: Personal Income by Major Sources (Thousands of Dollars)*

Source	Wyoming 1981		Albany County 1981		Albany County 1971	
	$	% of Total	$	% of Total	$	of Total
Farm	42703	.94	891	.47	1661	2.67
Ag., Serv., For., Fish, and Other	14720	.32	503	.26	139	.22
Mining	1167155	25.73	836	.44	68	.11
Construction	524627	11.56	11205	5.89	4509	7.24
Manufacturing	225847	4.98	11003	5.79	3861	6.20
Transportation & Public Utilites	471293	10.39	19101	10.05	6105	9.80
Wholesale Trade	251435	5.54	3185	1.68	1209	1.94
Retail Trade	412226	9.09	22166	11.66	8205	13.17
Finance, Insurance, & Real Estate	143506	3.16	7203	3.79	2249	3.61
Services	505006	11.13	28730	15.11	7837	12.58
Government	778058	17.15	85277	44.86	26467	42.48
Total	4536576		190100		62310	

*REIS data

local tax revenue amounted to $352,000, according to U.S. Travel Data Center figures.

While agriculture plays a minor role in the total economy, Albany County is noted for its large ranches. According to the 1978 U.S. Census of Agriculture, the average ranch in Albany County was 7,750 acres in size, with an aveage valuation of $1,022,450.

In 1978, 142 of the 215 ranches in Albany County included some irrigation, used mostly in producing feed for livestock. In 1981, Albany County ranked eighth among Wyoming counties in all hay production.

OUTLOOK

With virtually no mining activity and little oil, Albany County has not shared in the "booms" to the same extent as some Wyoming counties. Likewise, it has not suffered the "busts."

Remarkable stability has been the rule in Albany County, characterized by moderate growth patterns in population and employment. And nothing appears on the horizon that should disrupt such trends. The University of Wyoming will continue to be the key stabilizing influence, and employment will continue to be strongly tied to the government, retail trade, and service sectors.

S.T. Mast and Ruth Tebbutt, IPP

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UW Key Element in Albany County Economy

From modest beginnings, the University of Wyoming has developed into the mainstay of the Albany County economy.

Founded in 1886, the university opened its doors four years before statehood. The city of Laramie provided 10 acres for the site; an additional 10 acres were purchased from the Union Pacific for $400. The university started classes in 1887, with one building, five professors, two tutors, and 42 students. In 1887, total enrollment fees were $7.50.

The importance of the university in the local economy increased with time, while the importance of railroad activity declined. Today, the campus consists of 753 acres of land and 79 academic buildings. Plant investments amount to over $180 million. The University of Wyoming is the only four-year university located in the state.

The university's 1985-1986 budget request includes $108,683,647 for instruction and research, $21,908,625 for maintenance, $16,739,869 for the College of Human Medicine, $11,883,300 for extension and public service, $10,266,097 for student services and student aid, and $8,827,734 for intercollegiate athletics. The total recommended budget request is for $194,960,999.

Among the items on the university's long-term capital priority list are an Animal Science and Biochemistry Building (with an estimated cost of $16,197,744), and animal science teaching arena (with an estimated cost of $2,662,000), and an east fieldhouse addition (with an estimated cost of $4,435,860).

ECONOMIC CHANGES

ECONOMIC CHANGES

(Editor's Note: The purpose of this section is to point out areas in the Wyoming economy in which noteworthy changes occurred, or in which existing trends were significantly accentuated, during the latest reporting period.)

Several positive signs appeared in the Wyoming economy during the third quarter of 1983.

The number of business failures dropped, after reaching their highest levels in over two years during the second quarter. A total of 51 business failures were reported during the third quarter, compared to 67 during the second quarter. However, the number of failures was still twice as high as the comparable figure during the third quarter two years ago, and only slightly less than the number recorded during the third quarter of 1982.

The value of business failures declined sharply between the second and third quarters, from $6,341,875 to $378,574.

At the same time, however, personal bankruptcies continued to increase during the third quarter, reaching their highest levels of any time during the Update's 12-quarter reporting period (a total of 172).

Bank assets during the first three quarters of 1983 increased by more than $313 million over the same period in 1982, according to State Examiner data. Total assets of Wyoming banks on September 30, 1983 were $4,200,520,000, compared to $3,887,184,000 for the same period in 1982. Loans increased by 6 percent during the first three quarters of 1983, as compared to the same period in 1982, while the U.S. Treasury securities increased by 48 percent.

The unemployment rate continued to decline, dropping to 7.7 percent on a quarterly basis during the third quarter. At the same time, the number of initial unemployment claims filed also dropped, from 11,576 during the second quarter to 8,796 during the third quarter. The number of initial claims filed was the lowest in two years.

In the energy sector, third-quarter Wyoming coal production increased over the second quarter and reached its highest level in the Update's 12-quarter reporting period. A total of 27.7 million tons of coal were mined during the third quarter, as compared to 24.7 million tons during the second quarter.

Oil production, however, continued to decline, hitting its lowest level in the Update's 12-quarter reporting period. During the third quarter, 323,000 barrels per day were produced, as compared to 334,000 barrels per day during the second quarter and 358,000 barrels per day during the third quarter of 1981.

Violent crimes also increased during the third quarter. After reaching a 12-quarter low of 274 during the second quarter, violent crimes increased to 409 during the third quarter.

S.T. Mast, IPR

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WYOMING DATA

Table 5: Agriculture[1]

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. Timber Cut in Wyoming National Forests (MBF)	34190.	25895.	5810.	25613.	33929.	11658.	4285.	23430.	26318.	14707.	5208.	35941.
Price indices[2] (1967=100)												
2. Wyoming Crops, Prices Received-Latest	346.	347.	371.	315.	288.	260.	249.	245.	264.	243.	256.	284.
3. Wyoming Crops, Prices Received-Average	316.	350.	347.	325.	301.	275.	251.	239.	255.	250.	251.	268.
4. U.S. Crops, Prices Received-Latest	272.	280.	265.	232.	234.	232.	240.	239.	223.	231.	243.	263.
5. U.S. Crops, Prices Received-Average	267.	278.	271.	249.	232.	238.	240.	235.	222.	224.	245.	254.
6. Wyoming, All Commodities, Prices Received-Latest	281.	279.	290.	270.	239.	256.	256.	250.	232.	263.	251.	238.
7. Wyoming, All Commodities, Prices Received-Average	281.	277.	284.	267.	251.	248.	261.	246.	239.	249.	257.	237.
8. U.S., All Commodities, Prices Received-Latest	264.	261.	260.	243.	233.	244.	252.	248.	233.	243.	246.	250.
9. U.S., All Commodities, Prices Received-Average	263.	263.	260.	252.	236.	243.	251.	247.	234.	240.	249.	247.
10. Wyoming Livestock, Prices Received-Latest	261.	259.	265.	257.	224.	254.	258.	251.	222.	269.	250.	224.
11. Wyoming Livestock, Prices Received-Average	274.	255.	266.	250.	236.	239.	264.	248.	234.	249.	258.	228.
12. U.S. Livestock, Prices Received-Latest	259.	246.	257.	254.	233.	254.	262.	257.	242.	254.	248.	240.
13. U.S. Livestock, Prices Received-Average	261.	250.	251.	256.	240.	248.	261.	258.	245.	253.	252.	242.
14. Prices Paid by U.S. Farmers-Latest	292.	302.	306.	306.	304.	314.	317.	316.	315.	321.	324.	326.
15. Prices Paid by U.S. Farmers-Average	291.	300.	305.	306.	305.	313.	315.	317.	315.	320.	324.	325.

[1] First time readers of WQU should refer to the "Format" page (in back) for an explanation of abbreviations and table formats.
[2] The index for the last month (latest) of each quarter, along with the average of the three monthly indices of each quarter.

Sources: Series 1: United States Forest Service. "Timber Cut and Sold, Convertible Products." Region 2 and 4 reports published quarterly.
Series 2-15: Wyoming Crop and Livestock Reporting Service. Bi-weekly Ag Statistics.

Table 6: Banking and Finance

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. Total Bank Loans (T$)	1764381.	1808747.	1898325.	1929706.	1984965.	2004233.	2123492.	2138495.	2147498.	2172221.	2224108.	2267097.
2. Total Bank Deposits (T$)	3034647.	2968348.	3112270.	3161593.	3278504.	3237333.	3322621.	3345619.	3587554.	3537206.	3669552.	3683748.
3. Total Bank Demand Deposits (T$)	878444.	736161.	737837.	759658.	731429.	657349.	635856.	649332.	680332.	576257.	579672.	595447.
4. Bankers' Loan-Deposit Ratio	.581	.609	.610	.610	.605	.619	.639	.639	.599	.614	.606	.615
5. Savings and Loan Mortgage Loans (T$)[1]	770474.	776172.	788526.	785208.	778334.	762153.	760622.	766593.	765708.	758938.	760041.	775159.
6. Savings and Loan Deposits (T$)	842740.	874533.	891585.	911587.	904212.	921642.	907758.	893087.	895689.	921290.	960250.	966113.
7. Prime Interest Rate[2]	20.3	18.0	20.0	20.0	15.8	16.2	16.2	13.5	11.8	10.5	10.5	11.0

[1]Only members of the Federal Home Loan Bank Board are included.
[2]Rate is for the last month of the quarter.

Sources: Series 1-4: Wyoming State Bank Examiner Quarterly Report.
Series 5-6: Federal Home Loan Bank of Seattle, Monthly Report. Comparative statistical analysis of member institutions.
Series 7: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published Monthly.

Table 7: Business Conditions

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. New Domestic Corporations	429.	424.	459.	459.	400.	389.	428.	403.	377.	348.	410.	366.
2. New Foreign Corporations	239.	294.	357.	356.	358.	357.	326.	285.	272.	240.	259.	331.
3. Total New Corporations	668.	718.	816.	815.	758.	746.	754.	688.	649.	588.	669.	697.
4. Business Failures	23.	40.	25.	27.	33.	31.	46.	54.	58.	47.	67.	51.
5. Value of Business Failures ($)	1054339.	1674135.	-635217.[1]	-240995.[1]	2987139.	2331991.	6842595.	-13034324.[1]	-6860186.[1]	6438421.	6341875.	378574.
6. Personal Bankruptcies	111.	132.	104.	98.	85.	96.	125.	123.	122.	140.	152.	172.

[1]Assets exceed liabilities.

Sources: Series 1-3: Secretary of State. New and Foreign Corporations. Monthly report.
Series 4-6: Cheyenne Credit Bureau. Wyoming bankruptcy cases, business failures, and value of failures. Weekly publication.

Table 8: Construction

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. New Residential Dwelling Units	965.	777.	978.	1072.	784.	85 .	1050.	872.	720.	675.	1113.	993.
2. Value of Residential Dwellings Constructed (M$)	42.0	40.2	56.1	67.8	40.4	40.4	58.6	51.2	42.8	49.3	75.1	60.4
3. Value of Nonresidential Construction (M$)	37.2	42.6	68.5	63.1	57.6	25.2	59.8	63.1	35.2	38.0	54.4	53.3
4. Building Permits Issued in Selected Wyoming Cities	2637.	3027.	4040.	3755.	2516.	2317.	3353.	4295.	2473.	2762.	3586.	3701.
5. Value of Authorized Construction	52550.	68995.	63557.	91789.	53839.	49768.	62939.	101359.	35383.	37119.	46402.	68715.
6. Mortgage Interest Rate[1]	12.86	13.48	14.12	14.69	15.23	14.93	14.74	14.34	13.09	12.97	11.90	12.09

[1]Conventional first mortgage for new home purchase. U.S. average for last month of quarter.

Sources: Series 1-3: F.W. Dodge Division of McGraw-Hill. "Dodge Construction Potentials." Published monthly.
Series 4-5: Institute for Policy Research. "Local Construction Reports." Survey of authorized construction in selected cities conducted monthly.
Series 6: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published monthly.

Table 9: Consumers

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. New Truck Registrations	3706.	3723.	4175.	4067.	3502.	4176.	3636.	3024.	3230.	3233.	3415.	3417.
2. New Car Registrations	4839.	4926.	4879.	4664.	3808.	4249.	4042.	3506.	3610.	3272.	3539.	3671.
3. Wyoming Personal Income (M$)	1303.	1337.	1403.	1477.	1474.	1476.	1524.	1469.	1470.	1398.	1484.	INA[1]
4. US Disposable Income[2] (B$)	1908.	1968.	2010.	2092.	2127.	2128.	2159.	2192.	2228.	2256.	2301.	2362.[1]
5. US Personal Income (M$)	579903.	581161.	601311.	615581.	632052.	620600.	636571.	644914.	657199.	651843.	666761.	INA[1]
6. Latest US Consumer[3] Price Index (1967=100)	258.7	265.2	271.4	279.1	281.1	282.5	290.1	292.8	292.0	293.0	297.2	300.8
7. Quarter's Average US CPI	256.4	263.1	269.1	276.7	280.4	281.9	286.8	292.3	292.9	292.5	296.1	299.5
8. Liquor Sales (T$)	11280.	6845.	9397.	9396.	11365.	7789.	9057.	8917.	10464.	7102.	7868.	8455.

[1]Personal income figures were not available for the months of August, 1983 and September, 1983 at the time of printing. For July, 1983, personal income in Wyoming was 519 million dollars, compared to 506 million dollars in July, 1982. Total U.S. Personal Income for July, 1983 was 225,490 million dollars, up 5.8 percent from July, 1982.

[2]Revised series. Estimates of the national income and product accounts, of which disposable personal income is a part, have been revised by the U.S. Department of Commerce for the last three years. As is usually done in July, new source data have been incorporated and seasonal factors have been updated. More information regarding the revisions can be found in the July, 1983 issue of the U.S. Department of Commerce publication Survey of Current Business.

[3]Number shown is for the last month of the quarter. CPI shown is the index for wage earners and clerical workers, not the CPI-U.

Sources: Series 1-2: R.L. Polk and Company Motor Statistical Division. "National New Vehicle Registration Service." Published monthly.
Series 3,5: Business Week. Monthly personal income for states, regions, and the U.S. Reported monthly.
Series 4,6,7: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published monthly.
Series 8: Wyoming Liquor Commission. Sales data are reported to IPR.

Table 10: Employment and Labor[1]

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. Civilian Labor Force	240566.	236480.	255956.	260041.	247523.	243298.	257820.	258974.	251909.	250727.	270361.	265371.
2. Employment	230685.	225414.	246075.	251110.	237402.	230717.	243696.	243798.	233790.	224223.	242945.	244831.
3. Unemployment	9881.	11066.	9881.	8931.	10121.	12581.	14123.	15177.	18120.	26503.	27416.	20540.
4. Unemployment Rate	4.1	4.7	3.9	3.4	4.1	5.2	5.5	5.9	7.2	10.6	10.1	7.7
5. Initial Claims Filed	7494.	8231.	5901.	5463.	8837.	11237.	11225.	10894.	14183.	15650.	11576.	879€.
6. Applications Received	9584.	13026.	13522.	13884.	10537.	12070.	14838.	15359.	13102.	12950.	11787.	12144.
7. New Non-Agricultural Openings	7526.	6912.	9903.	12991.	8010.	6119.	8344.	9190.	7035.	4724.	6185.	7992.
8. New Non-Agricultural Placements	6482.	5649.	7681.	10072.	6931.	5138.	7161.	8079.	5450.	4106.	6608.	10529.
9. Miners' Average Weekly Hours	43.3	43.8	42.8	41.5	42.5	42.0	41.7	39.7	38.1	39.8	38.5	39.6
10. Miners' Average Weekly Pay ($)	429.26	448.66	453.75	447.13	459.64	476.53	480.37	471.92	464.35	484.66	472.75	481.23
11. Miners' Average Hourly Wage ($)	9.91	10.24	10.61	10.78	10.81	11.34	11.52	11.90	12.18	12.17	12.29	12.15

[1]The most recent year's data are preliminary.

Sources: Series 1-11: Wyoming Employment Security Commission. Labor Force Trends. Published Quarterly.

Table 11: Energy and Mineral Production

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. Wyoming Coal (TST)	20799.	25901.	24574.	25108.	23556.	26586.	25809.	24257.	23696.	23980.	24746.	27743.
2. U.S. Coal (TST)	216015.	206426.	145696.	235672.	224793.	219743.	209771.	195253.	187564.	189251.	180439.	204127.
3. Wyoming Oil (TBPD)	361.	357.	358.	358.	358.	358.	354.	324.	326.	335.	334.	323.
4. U.S. Oil (TBPD)	8554.	8583.	8548.	8550.	8566.	8629.	8657.	8653.	8681.	8648.	8663.	8672.
5. Wyoming Natural Gas (MCFD)	1232.	1358.	1717.	1124.	1074.	1028.	1030.	972.	1181.	1224.	1396.	INA
6. U.S. Natural Gas (MCFD)	55776.	56830.	55120.	54357.	54323.	55357.	50801.	48183.	48133.	48558.	43426.	INA

Sources: Series 1,2,5, and 6: U.S. Department of Energy. Energy Data Reports. Gas data are published monthly, and coal data are published weekly.
Series 3-4: The Oil and Gas Journal. U.S. and Wyoming Oil Production published weekly.

Table 12: Government

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. Sales and Use Tax Collections (T$)	57547.	58605.	64136.	66012.	68766.	73830.	66759.	65903.	61208.	56909.	46453.	35157.
2. Violent Crime[1]	439.	420.	468.	599.	553.	373.	389.	411.	295.	301.	274.	409.
3. Nonviolent Crime[2]	4916.	5430.	5783.	6111.	5299.	4811.	5778.	6346.	5093.	4802.	4821.	5319.
4. Stolen Property (T$)	3696.	3601.	4471.	4421.	3201.	3541.	4562.	3982.	2963.	3176.	2918.	3005.
5. Stolen Property Recovery Rate	46.8	36.0	45.4	40.6	58.6	46.9	49.3	42.8	42.8	46.5	36.9	40.3
6. Percent of Crimes Cleared[3]	23.4	21.6	23.4	19.5	22.3	24.9	21.0	20.1	21.3	22.8	21.8	24.2

[1]Murder, negligent homicide, forcible rape, robbery, aggravated assault.
[2]Burglary, larceny, auto theft.
[3]Clearance of a crime indicates resolution of a complaint by arrest or other extraordinary means.

Sources: Series 1: Wyoming Department of Revenue and Taxation, Sales and Use Tax Division. "Net Collections by Business Class by County." Published monthly.
Series 2-6: Uniform Crime Reporting Center for Criminal Justice Research, Division of Criminal Identification, Office of the State Attorney General. "Crime in Wyoming." Published quarterly.

Table 13: Tourism

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
Visitors, National Parks and Monuments												
1. Yellowstone	144039.	74693.	609642.	1715175.	149682.	82758.	600071.	1614242.	116082.	65368.	553986.	1653211.
2. Grand Teton	412817.	206147.	847464.	2147775.	393843.	185935.	820236.	2066704.	371007.	183675.	686326.	1462761.
3. Devil's Tower	12346.	13425.	63064.	205660.	18159.	9425.	86305.	161989.	13232.	8912.	87506.	160953.
4. Fossil Butte	1421.	339.	3795.	7769.	1018.	596.	6691.	10303.	1601.	626.	5134.	9120.
5. Fort Laramie	6337.	6309.	40192.	64598.	10190.	5037.	31447.	51881.	6906.	4887.	28311.	56592.
6. Big Horn NRA-South[1]	35422.	18509.	34846.	56566.	27820.	17701.	42059.	53839.	30720.	13428.	44977.	56419.
Other Tourism Indicators												
7. Traffic Count (Avg. # of Vehicles/Day)	99772.	86957.	125992.	169095.	103438.	103864.	126037.	166170.	97892.	84187.	122665.	167385.
8. Hotel, Motel, and Camp Sales Tax (T$)	1315.	1036.	1272.	2073.	1447.	1247.	1273.	2226.	1323.	912.	1048.	2017.[2]
9. Gasoline Sales (TGL)	83626.	74027.	93721.	109335.	87500.	72548.	93556.	108733.	81347.	70457.	81160.	103000.[2]

[1] Big Horn Canyon N.R.A. is only partially in Wyoming. Only visitation for the Wyoming part is shown.
[2] Estimated from trend and July and August data.

Sources: Series 1-6: Monthly visitor use reports of the National Park Service.
Series 7: Traffic Survey Unit - Planning Branch, Wyoming State Highway Department. "Selected Recording Stations Traffic Counter Data." Published monthly.
Series 8: Wyoming Department of Revenue and Taxation monthly report.
Series 9: Petroleum Association of Wyoming. Monthly Gasoline Gallonage Report.

Table 14: Utilities[1]

Calendar Quarters	4/80	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83
1. Residential Electric Connections	166342.	168477.	169494.	169777.	174369.	174018.	174126.	177081.	177968.	179111.	179717.	178762.
2. Residential Electric Consumption (TKWH)	335159.	487386.	331256.	282226.	218361.	504636.	375401.	302786.	391608.	489892.	392223.	294755.
3. Commercial Electric Connections	28847.	29465.	29605.	30522.	30047.	30833.	31086.	30841.	30388.	30772.	31194.	30533.
4. Commercial Electric Consumption (TKWH)	271561.	298580.	288617.	317998.	303091.	354594.	319879.	331351.	327961.	351633.	327565.	353743.
5. Industrial Electric Connections	3312.	3377.	3384.	3484.	3590.	3581.	3451.	3702.	3751.	3647.	3667.	3655.
6. Industrial Electric Consumption (TKWH)	1049382.	1100964.	1097628.	1112398.	1156967.	1266782.	1179112.	1178792.	1225845.	1471528.	1388817.	1397176.
7. Other Connections[2]	3946.	3579.	3266.	4102.	3652.	4520.	4778.	3243.	2857.	2819.	3059.	3164.
8. Other Consumption (TKWH)	55639.	30333.	45006.	72994.	79409.	48237.	31570.	70139.	12240.	6780.	8710.	46427.
9. Residential Natural Gas Connections	72468.	73699.	73712.	72966.	74828.	75677.	75413.	74861.	75955.	76567.	76449.	74638.
10. Residential Natural Gas Consumption (TCF)	2770400.	3923502.	2180779.	814900.	2499236.	4607468.	2504865.	872772.	2972244.	6531664.	8926691.	2871311.
11. Commercial Natural Gas Connections[3]	6561.	6595.	6557.	6385.	6393.	6482.	6552.	6452.	6476.	6873.	6869.	6710.
12. Commercial Natural Gas Consumption (TCF)[3]	1125956.	1766515.	970295.	382137.	943319.	1955899.	1075767.	385052.	1196763.	3667569.	5716746.	1792146.
13. Industrial Natural Gas Connections	93.	92.	94.	90.	89.	89.	90.	90.	95.	97.	97.	97.
14. Industrial Natural Gas Consumption (TCF)	7647357.	7345317.	5607535.	4959825.	7479593.	7328389.	5335475.	5564715.	7918440.	7626560.	10221456.	9291988.
15. Other Natural Gas Connections[3]	363.	348.	344.	349.	398.	400.	404.	409.	409.	48.	48.	46.
16. Other Natural Gas Consumption (TCF)[3]	204268.	252249.	147575.	87695.	196349.	299920.	134722.	44697.	138389.	176.	322.	5323.
17. Business Telephone Connections	44702.	45795.	45495.	47932.	47828.	48501.	49003.	49179.	48824.	48052.	46102.	46550.
18. Private Telephone Connections	156290.	158740.	159456.	160688.	163100.	163790.	162953.	162126.	162394.	160658.	155637.	103791.

[1]Some small utilities do not report, hence the data are slightly less than actual state totals. The data are consistent. The same utilities' reports are included in each figure.
[2]"Other" includes agriculture, municipal, and other public.
[3]Figures for the first and second quarter of 1983 reflect a change in the authority connections/consumption made by the Northern Utilities. Prior to January 1983, the company listed public authority under the category of other natural gas connections/consumption. Northern Gas now combines public authority connections/consumption with their commercial natural gas connections/consumption.

Sources: Series 1-18: Reports to IPR by selected electric, natural gas, and telephone utility companies. Survey conducted monthly.

Table 15: Distribution of Cigarette Tax to Cities, Towns, and Counties*

Fiscal Years	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Albany	129320.	136095.	143685.	134517.	137216.	145606.	152344.	145700.	142818.	152145.	146686	147202.	132424.
Big Horn	46478.	46768.	52056.	52903.	52474.	56592.	56802.	56157.	58272.	59770.	61513.	64038.	58117.
Campbell	92086.	83974.	100800.	96064.	118254.	137295.	163073.	187870.	191419.	213895.	245719.	282397.	248378.
Carbon	97390.	108183.	110086.	135006.	130451.	137276.	153035.	166314.	175519.	195530.	198443.	180603.	159891.
Converse	39354.	37389.	42204.	45601.	59179.	71590.	76636.	86240.	95179.	101585.	103190.	104758.	97254.
Crook	24619.	24347.	26733.	25758.	30242.	34260.	36633.	35221.	34092.	35553.	36493.	36623.	39367.
Fremont	165738.	172767.	191756.	185217.	200420.	181418.	214245.	234670.	254287.	253878.	256637.	243048.	233865.
Goshen	61926.	68586.	79133.	73807.	82275.	86134.	84787.	85518.	84136.	86018.	85443.	84371.	76728.
Hot Springs	32670.	31630.	34415.	33587.	33864.	37747.	36195.	35932.	39469.	39313.	40211.	41028.	39051.
Johnson	34753.	32188.	34643.	34275.	35320.	42430.	40658.	43515.	44177.	42787.	45488.	46610.	45052.
Laramie	282948.	301174.	361286.	357095.	371453.	389974.	389479.	409815.	419705.	444986.	444119.	427899.	429788.
Lincoln	39718.	38941.	45025.	51691.	41880.	47584.	49221.	50572.	59067.	68234.	72163.	79577.	61406.
Natrona	396222.	411089.	454318.	424048.	437110.	475119.	490442.	527855.	557211.	596425.	614225.	620961.	560105.
Niobrara	17223.	18794.	20807.	19317.	19641.	22129.	21985.	21196.	21725.	22147.	24179.	22674.	21203.
Park	105760.	113933.	127026.	123300.	124686.	138951.	137246.	139156.	145221.	136129.	140370.	149333.	144289.
Platte	41366.	42777.	49525.	49102.	52547.	58659.	55507.	65326.	84546.	95659.	85188.	70871.	60565.
Sheridan	118510.	127366.	135244.	136831.	142128.	158483.	177003.	182140.	182915.	186731.	183383.	182208.	102810.
Sublette	22534.	23565.	20598.	22356.	26374.	25824.	21797.	31132.	37474.	52847.	49200.	58489.	39217.
Sweetwater	122856.	145077.	181439.	235827.	263158.	263317.	255372.	282362.	304149.	327056.	361615.	369963.	297677.
Teton	50517.	56083.	62857.	60369.	63490.	66698.	76295.	73245.	79055.	80844.	84661.	90350.	72084.
Uinta	35140.	42354.	47258.	47348.	65414.	54803.	60050.	74978.	86067.	112158.	139917.	160007.	134134.
Washakie	49526.	48616.	51056.	48904.	48712.	56081.	56595.	57158.	59945.	59778.	61630.	64638.	58565.
Weston	40794.	42975.	46121.	43924.	45183.	45610.	53915.	52088.	55308.	50949.	53081.	58256.	59354.
Wyoming	2047395	2154581	2418061	2436332	2581473	2754790	2859314	3044161	3212056	3414416	3535384	3585677	3171325

*Totals subject to rounding error.

Table 16: Gasoline Gallonage by County

Fiscal Years	1971[1]	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Albany	17212122.	17777890.	18524147.	17468798.	17414673.	19881679.	20561702.	20647496.	19682829.	19041207.	17975950.	17750236.	14982329.
Big Horn	6438944.	5808783.	6543232.	6623060.	6990765.	7393928.	7524672.	7524998.	8665803.	7557797.	7267764.	7549605.	6299922.
Campbell	10679478.	10499490.	11012241.	10790139.	13269272.	14645430.	10792370.	16947424.	22377834.	21651192.	23039043.	24730243.	20950853.
Carbon	18691035.	19341575.	21026771.	19822020.	21448175.	22832354.	23938259.	25466270.	26189756.	24818626.	24194994.	23730313.	17220778.
Converse	5261926.	5397430.	5835814.	5814712.	6924648.	7727344.	9924054.	10322322.	12876605.	11492502.	10289510.	9858939.	8106442.
Crook	4928868.	4261709.	4748110.	4361992.	4804869.	5108221.	5948941.	5719712.	5871170.	5321149.	5427036.	5731421.	4436418.
Fremont	17883134.	19059676.	19873235.	20085029.	20946525.	22110420.	24430483.	27239830.	32265450.	31277276.	24415477.	24139477.	22292306.
Goshen	7871972.	7773774.	8651187.	8218136.	8416773.	8642165.	9021168.	8667756.	9697555.	8465940.	8052113.	8016687.	6774799.
Hot Springs	3254048.	3403417.	3672851.	3412146.	3413610.	4026828.	3455950.	3236292.	3714305.	3889030.	3860137.	3957830.	2909325.
Johnson	5315020.	5431724.	5890905.	5477644.	6249676.	6946185.	7207827.	7416654.	7539377.	7985409.	7008827.	6193367.	5374633.
Laramie	33886661.	35303278.	38529017.	37847583.	37974040.	33762476.	43440375.	48522411.	39019272.	43480476.	41480235.	41942691.	37474549.
Lincoln	7767837.	7213070.	7314684.	7735477.	7798689.	8509923.	9603338.	10150269.	10148861.	9786901.	10414209.	11389239.	8692553.
Natrona	30834608.	31383704.	33207146.	33438557.	37644064.	40038670.	45373841.	47911204.	54684354.	47364775.	45592396.	45670535.	37674199.
Niobrara	3419611.	3831625.	3895951.	3813290.	3677869.	3961340.	4046676.	3833422.	4208433.	3694457.	3943862.	3760247.	3122613.
Park	14899589.	14939337.	15663866.	16197059.	16157099.	16010801.	17686265.	17136923.	17835596.	18685092.	16060736.	17195314.	14065114.
Platte	6579122.	7074538.	7235504.	7066349.	7784386.	8254436.	8147594.	8663522.	11409936.	10575805.	9549840.	8054305.	6385239.
Sheridan	10739419.	11149084.	11684842.	11313483.	12440542.	15062724.	16058655.	17892857.	18923967.	18172997.	15403513.	14688062.	14590023.
Sublette	3688078.	3804518.	4712794.	4504815.	3952494.	4198127.	4490383.	4736530.	4798465.	4022081.	4569166.	4596857.	3567541.
Sweetwater	20294989.	22646390.	26730550.	29318097.	32478183.	32780623.	34240073.	38549713.	45287061.	40167306.	41503253.	38885971.	28905692.
Teton	8687257.	9541581.	13609571.	9929430.	10183306.	12013872.	12865105.	13811484.	14642737.	13327979.	11817547.	12977837.	9903300.
Uinta	8619321.	9040273.	10216688.	9552623.	10554704.	10673275.	11131767.	12218349.	14396910.	15378053.	19959370.	22305946.	17954161.
Washakie	5398149.	4956516.	5471154.	5571042.	5910912.	6348372.	6995213.	6397177.	8514465.	8209423.	6525497.	7034287.	5934528.
Weston	4311096.	4437972.	4449653.	4320140.	4240433.	5471073.	4835468.	5373358.	5705560.	4869690.	5028442.	5376883.	4262967.
Wyoming	256662284	264077354	288499913	282681621	300665707	316400566	341720179	368385973	398456301	379235163	363378917	365536291	301880284

[1]Figures for fiscal year 1971 include an estimate. Due to an inconsistency in the format that gasoline gallonage data was published, the month of July, 1979 was estimated based upon a percentage of a yearly total.

NOTE: Gasoline tax was 7¢ per gallon for the period from fiscal year 1971 to March 1, 1976, at which time an 8¢ per gallon tax became effective.

Table 17: Locally Assessed Valuation by County

Fiscal Years	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Albany	33543251.	35864591.	36820486.	38795845.	36343346.	44113039.	46909255.	49753451.	54595960.	56642475.	60099472.	63519068.	66523011.
Big Horn	18132429.	18038131.	18529141.	19964120.	18869665.	21221753.	22355875.	22121398.	23747938.	24986354.	27272012.	32319422.	34772886.
Campbell	27627552.	29196171.	31087581.	34585438.	36436176.	45101209.	59759177.	80808838.	101812427.	112471782.	136715187.	159912309.	168580323.
Carbon	33319109.	37826299.	39470638.	41898200.	41851844.	48650653.	52047682.	55752777.	64018028.	71263655.	80578920.	80481220.	79644480.
Converse	16834206.	19176312.	21147003.	23425795.	22739421.	28116080.	30877511.	37135443.	41586053.	46784472.	51723401.	53964075.	54877497.
Crook	13376483.	14313178.	15991389.	17588744.	15815846.	18599035.	18974489.	16556114.	18919265.	20239818.	21220439.	22098803.	22855799.
Fremont	52108599.	53431861.	54692825.	57769252.	56412839.	60998982.	65432438.	68312801.	81778341.	91247203.	98027349.	101247388.	101091458.
Goshen	24711990.	25706134.	27149659.	29335296.	27628907.	32090254.	33399185.	31550613.	34523792.	36148399.	37706935.	40210228.	41329581.
Hot Springs	10203580.	10473522.	10823632.	11633023.	10900274.	12586095.	13001142.	12310972.	13112809.	14624882.	17374404.	18036951.	18734616.
Johnson	16844720.	17531450.	18790507.	20371665.	19568455.	25017032.	25766655.	23110630.	28566484.	30643666.	34437227.	35988825.	38167643.
Laramie	85913812.	88088329.	92068281.	97598224.	103576951.	117189460.	123563202.	128172685.	139948349.	149024243.	151552952.	163552636.	168241768.
Lincoln	15955340.	16585540.	17714659.	20046669.	20272312.	24550006.	27548409.	26550242.	28314285.	30037422.	33028978.	36781028.	39261362.
Natrona	84398449.	84892416.	84245770.	88940647.	89894072.	112092178.	124879576.	131807211.	150223052.	163970817.	179214058.	193305500.	202650724.
Niobrara	11566741.	12303999.	13638942.	14969058.	13052880.	14316920.	14753381.	13310974.	13906413.	14442289.	15696783.	16421161.	16760277.
Park	33622044.	34508505.	35819171.	38572937.	38060012.	43979918.	46800063.	48549156.	52805239.	59142566.	64717421.	68110455.	71178762.
Platte	14289913.	15267925.	16390923.	18089454.	16949514.	19325484.	21096588.	19875079.	22220046.	23385838.	24784679.	25229928.	25273602.
Sheridan	31888663.	33137711.	35331972.	37903184.	35629990.	41052524.	43433051.	45822267.	54365729.	57297381.	61510936.	62626497.	64257532.
Sublette	13302666.	13524509.	14405718.	16060557.	14219283.	15876243.	17114264.	15265429.	17547823.	18923914.	22785553.	25943553.	26874541.
Sweetwater	39237247.	40075230.	47486939.	58223164.	71461924.	86336196.	96128068.	103487495.	115075791.	126068209.	147670785.	166591282.	165551668.
Teton	16918251.	18409568.	20479095.	22396801.	22795218.	25594776.	31664467.	33081478.	35086191.	42515673.	45402212.	47855020.	51288923.
Uinta	12216173.	12695466.	13188508.	14396993.	13850273.	15028640.	17049325.	17677047.	19940248.	24950580.	33962654.	52311478.	81900654.
Washakie	14991781.	15218094.	15661823.	16509574.	16142235.	17927882.	19945860.	220099279.	25674523.	26888157.	29834003.	31306158.	31414854.
Weston	15228812.	15390007.	16159473.	17176527.	15767795.	17498096.	18276587.	17332045.	19071160.	19691080.	22636213.	23603362.	25404424.
Wyoming	636231811	661654948	697094135	756251167	758249232	885462455	970776250	1020443424	1156839946	1261390875	1397952573	1521416347	1596636835

Table 18: Sales and Use Tax Collections by County

Fiscal Years	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Albany	1735138.	1925823.	2058779.	2227478.	2427340.	3000783.	3382182.	4090480.	3174758.	4877631.	5585492.	5886679.	5883924.
Big Horn	621321.	702977.	799071.	908712.	1088284.	1192320.	1289474.	1468654.	1260042.	1834375.	2110631.	2372989.	2146492.
Campbell	2083896.	1919239.	2200689.	2668182.	4739975.	5240779.	8224673.	11933643.	8576491.	14167548.	20513629.	25949524.	22656053.
Carbon	1308818.	1554528.	1856609.	2140551.	3299427.	3470590.	4533693.	6230708.	5531253.	8573894.	10099743.	9852586.	8436781.
Converse	483925.	503740.	558965.	719473.	1008556.	1593737.	2323005.	2947155.	10537358.	4117827.	4913146.	5780495.	4516397.
Crook	276293.	285619.	331505.	377431.	442347.	569334.	626689.	795358.	816409.	1172773.	1476321.	2181116.	1621756.
Fremont	2091853.	2290387.	2650013.	2948135.	3673263.	4562969.	5739204.	7332615.	6521495.	9615481.	11250954.	11739879.	9604593.
Goshen	750496.	853178.	1000157.	1174064.	1363565.	1572721.	1581807.	1767552.	1644256.	2483066.	2353621.	2344473.	2297056.
Hot Springs	406169.	478199.	519859.	581423.	753293.	849257.	1028561.	1300389.	1319043.	1837829.	2330544.	2509533.	2538179.
Johnson	453565.	456723.	517683.	577770.	696710.	960033.	935051.	1121128.	1121259.	1643115.	1906343.	2283995.	2217569.
Laramie	4067707.	4691907.	5650345.	6167302.	6998607.	7976280.	8684210.	11599854.	10329659.	15473628.	17586838.	18678927.	19206217.
Lincoln	568464.	621588.	673304.	768244.	956666.	1095679.	1532159.	1826740.	1624964.	2756329.	4127658.	4806112.	4380873.
Natrona	6458131.	7209274.	8273639.	10256149.	32087139.	19483113.	23119986.	30354331.	22382107.	40667061.	52115392.	59217892.	43002399.
Niobrara	209637.	231368.	244818.	275711.	311667.	353102.	407415.	516739.	419072.	658287.	784348.	825221.	799280.
Park	1710118.	1953768.	2274666.	2564564.	3257151.	3509807.	4101623.	4767986.	3654371.	5493072.	7905014.	8226134.	7917235.
Platte	445593.	491456.	567185.	681032.	798246.	976364.	1401470.	3702927.	3621831.	3484445.	2816807.	2273240.	2668376.
Sheridan	1480109.	1677018.	1843799.	2055786.	2433851.	2972476.	3420491.	4390251.	3959335.	6113433.	7038540.	7143326.	7584508.
Sublette	303788.	355378.	369100.	432879.	524536.	610191.	651476.	861772.	779079.	1261160.	1524367.	1909261.	1466446.
Sweetwater	1907745.	2456624.	4550818.	7503535.	9840669.	9834891.	11979899	13325926.	9638867.	18231737.	27219448.	29059081.	23147841.
Teton	1173998.	1324002.	1537235.	1828389.	2517133.	2989719.	3485485.	4310964.	3545289.	456005.	5896823.	6627874.	6933776.
Uinta	567843.	566902.	638096.	732575.	945463.	1190183.	1786089.	2479222.	2102074.	4677506.	8800137.	15535851.	15196451.
Washakie	791350.	887385.	991911.	1107965.	1330430.	1611228.	1778066.	2090939.	1585121.	2590879.	3509854.	3141839.	2748150.
Weston	509228.	531000.	586616.	686041.	912505.	1371913.	1562211.	1787897.	1494958.	2084683.	28445505.	3340066.	2994870.
Wyoming	34363062	37687448	44929272	55265770	76200841	88399589	106813174	137906932	165107953	196884131	239913704	275366889	230473383

Table 19: State Board of Equalization Property Valuations by County

Fiscal Years	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Albany	16668340.	18205962.	19188766.	19627204.	20163520.	20595519.	20913219.	21065374.	22663460.	26364084.	29227975.	33381680.	33554114.
Big Horn	21375876.	22266798.	23218320.	25259306.	39928127.	58331403.	56773420.	57009938.	62300048.	74039456.	112993054.	182925349.	164701060.
Campbell	126612122.	121557030.	117621369.	158420299.	285913179.	259638511.	296846115.	413452321.	494361467.	587257381.	861956780.	1260698156.	1337207507.
Carbon	32447127.	37157756.	46495625.	56762452.	72011461.	115895318.	136583122.	175107480.	229522906.	268110892.	359005431.	533758387.	477136979.
Converse	43814092.	49334725.	51089558.	61478884.	105661126.	163386167.	149646905.	172581192.	186066391.	217489067.	318007957.	344708207.	303946370.
Crook	14866041.	14199876.	13509831.	17429783.	26989627.	27801039.	32115570.	30469373.	30799412.	41377264.	69399475.	97942471.	89889376.
Fremont	62371906.	61791381.	67446144.	67341091.	80440912.	84287532.	109882384.	151856368.	148325685.	195901476.	251832946.	390503829.	410923209.
Goshen	5184076.	5213664.	5371176.	5424327.	5621714.	5656536.	5886900.	5806083.	5901272.	9078390.	9103428.	9639228.	9279815.
Hot Springs	31081312.	30919679.	29101717.	34238819.	57588779.	61547376.	73572201.	80432236.	87997307.	94435551.	213152039.	285883643.	240939581.
Johnson	16539371.	16659554.	15126855.	16026220.	23388740.	29736784.	33236794.	33681626.	37349778.	47574675.	76252731.	98531331.	81380904.
Laramie	21068459.	22312768.	23822898.	25286022.	27866478.	30239528.	32149570.	37526087.	38778821.	46235114.	54394903.	62165614.	63416612.
Lincoln	35106172.	39031440.	42792971.	51765248.	62110167.	66038862.	88508219.	100290874.	110354592.	126265314.	167448517.	211121949.	213059769.
Natrona	60934801.	63803824.	63210135.	90907611.	123553512.	95632985.	87905794.	86614212.	96033234.	117170659.	164910287.	298357257.	294399180.
Niobrara	3850241.	3907328.	4150428.	4351776.	6366696.	8234129.	8812563.	9346507.	11573231.	27145414.	43225832.	50929939.	43505346.
Park	90711244.	94531997.	88462100.	97606851.	150563075.	176144387.	179800396.	178852377.	193212612.	231536077.	459112244.	692135300.	613967744.
Platte	8813054.	9177235.	9597220.	9365929.	11188524.	12029216.	17580845.	47514112.	75548936.	153985369.	150679583.	157464443.	112544263.
Sheridan	10279919.	11292584.	8803947.	7735023.	11379376.	13205169.	14295522.	38908675.	49754416.	67454097.	81082483.	72531610.	82348054.
Sublette	24770018.	25641149.	24635682.	30319903.	39720631.	46346597.	47019930.	63034060.	62604848.	77502997.	100355576.	129801981.	128893011.
Sweetwater	81930433.	86118913.	93507102.	127902321.	201224504.	266028106.	373847509.	449571908.	498380422.	650321049.	907243515.	1111193603.	1093599783.
Teton	1776961.	2108081.	2065539.	2250526.	3064263.	3467819.	3685332.	4221156.	4813289.	5344029.	6428787.	7208112.	7204434.
Uinta	11684653.	12105493.	12277946.	13080230.	13529262.	14130579.	14521113.	20930270.	38109194.	107306209.	205658318.	376997046.	370230565.
Washakie	10783794.	10282454.	10939666.	11876361.	15575700.	15906362.	17776756.	20102756.	23112119.	26613114.	61187869.	82878559.	66358615.
Weston	15552117.	16690931.	16507332.	18238393.	26357768.	29640103.	32080509.	32959872.	38223144.	55235246.	75678474.	99966905.	101434999.
Wyoming	748222129	774300713	788992418	952694579	1410207141	1603920027	1833440688	2231334857	2545786584	325374924	4778338204	6590724499	6339921290

Wyoming Comparative Cost of Living Index* (October 5-7): Cheyenne = 100

City	Rank	All Items	Food	Housing	Transportation	Medical
Jackson	1	123.73	106.83	154.93	102.62	106.08
Gillette	2	115.91	108.48	137.56	102.51	108.54
Evanston	3	115.58	98.11	139.77	101.95	102.17
Sheridan	4	110.52	106.25	123.90	98.87	100.92
Sundance	5	110.31	112.37	121.80	97.10	102.96
Kemmerer	6	109.09	98.10	123.82	100.52	102.82
Pinedale	7	108.84	109.62	116.50	101.14	102.29
Rock Springs	8	106.76	106.69	112.27	102.75	99.51
Casper	9	105.95	107.24	107.82	103.77	108.24
Wheatland	10	103.99	104.47	105.39	102.13	98.53
Buffalo	11	101.71	103.37	100.79	96.67	101.98
Laramie	12	101.43	98.55	106.07	98.54	97.23
Thermopolis	13	101.15	108.28	98.62	99.13	100.36
Cody	14	100.44	107.49	97.87	99.34	102.14
Cheyenne	15	100.00	100.00	100.00	100.00	100.00
Newcastle	16	99.82	102.41	98.50	96.84	104.78
Riverton	17	99.76	103.06	97.94	98.85	103.03
Douglas	18	99.58	98.97	97.43	100.88	105.66
Worland	19	99.00	108.42	94.13	97.66	101.11
Rawlins	20	98.88	103.00	98.40	99.73	97.18
Greybull	21	95.31	106.25	83.10	100.71	100.82
Lusk	22	95.00	102.55	83.32	100.10	97.15
Torrington	23	93.73	98.70	85.69	97.18	100.12

*Apparel and Recreation indices not shown.

Source: Wyoming Department of Administration and Fiscal Control.

CENSUS RETRIEVAL INFORMATION SERVICE:
HOW WYOMING RANKS AMONG THE 50 STATES

ITEM	RANK	WYOMING STATE	U.S.
Total population--1980	49th	469,557	22,545,805
Land area 1980 (sq.mi.)	9th	96,989	3,539,395
Population per square mile--1980	49th	4.8	64.0
Percent change in population--1970-1980	4th	41.3%	11.4%
Median age--1980 (years)	48th	27.0	30.0
Percent Population 65 years old and over--1980	47th	7.9%	11.3%
Percent Non-white population--1980	42nd	4.9%	16.9%
Black population--1980	42nd	.7%	11.7%
Asian and Pacific Islander population--1980	30th	.4%	1.5%
American Indian, Eskimo, and Aleut--1980	9th	1.5%	.6%
Spanish population--1980	12th	5.2%	6.4%
Metropolitan population--1980	50th	15.3%	74.7%
Persons living in different state in 1975 (5 years old & over)--1980	3rd	28.3%	9.7%
Birth rate[1]--1979	4th	21.7%	15.9%
Death rate[1]--1979	45th	6.8%	8.5%
Marriage rate[1]--1980	4th	14.6%	10.9%
Divorce rate[1]--1980	3rd	8.5%	5.3%
Legal abortions per 1,000 live births--1980	47th	107	428
Physicians per 100,000 population--1980	47th	113	185
Hospital beds per 100,000 population--1980	37th	533	602
Personal health care expenditures per capita--1978	48th	$551	$745
Total housing units--1980	49th	188,217	88,411,263
Year-round housing units--1980 percent			
Built between 1970 and 1980	5th	40.4%	26.2%
Prior to 1940	25th	22.6%	25.8%
With 5 or more units in structure	39th	10.0%	17.5%
With air conditioning	43rd	19.8%	55.0%
Homeownership rate--1980	19th	69.2%	64.4%
Median value of specified owner--occupied housing units--1980	9th	$59,800	$47,200
Median gross rent of specified renter-occupied housing units--1980	14th	$252	$243
Crime rate[1]--1981	27th	5,132	5,800
Federal and state prisoners per 100,000 population--1981	25th	117	153
Public elementary & secondary schools--1981			
Expenditures per capita	2nd	$706	$434
Current expenditures per pupil	14th	$2,596	$2,350
Public school teachers salaries 1982	8th	$21,200	$19,000
Percent high school graduates (persons 25 years old & over)--1980	4th	77.9%	66.5%
Undergraduate enrollment in institutions of higher education--1979	49th	14,053	8,820,657
Civilian labor force--1981	49th	25,000	108,670,000
Unemployment rate--1981	49th	4.0%	7.6%
Manufacturing employment--1979			
Number	49th	11,821	21,914,754
Percent of employed	50th	5.5%	22.4%
Average weekly earnings of production workers in manufacturing--1981	28th	$314	$318
Median household money income--1979	5th	$19,994	$16,841
Per capita money income--1979	10th	$7,927	$7,298

WYOMING

ITEM	RANK	STATE	U.S.
Percent below poverty level--1979			
Persons	50th	7.9%	12.4%
Children under 18 years	50th	7.7%	16.0%
State and local governments--1981			
Expenditures, total	46th	$1.5 billion	$487.0 billion
Expenditures, per capita	2nd	$3,130	$2,150
Tax revenues, per capita	2nd	$1,704	$1,079
Debt, per capita	2nd	$3,240	$1,606
Federal government expenditures per capita--1981	7th	$3,104	$2,414
Percent of voting-age population casting votes for President--1980	28th	54.5%	53.2%
Motor vehicles per 1,000 population--1980	1st	1,040	713
Means of transportation to work--1980			
Percent of workers commuting in carpools	13th	22.8%	19.7%
Percent using car, truck, or van	33rd	83.7%	84.1%
Motor vehicle traffic fatalities per 100,000 licensed drivers--1980	1st	71	35
Energy consumption per capita--1980	1st	842. million BTU	334. million BTU
Temperature, average annual	46th	42.6°F	53.2°F
Precipitation, average annual	46th	12.7 inches	28.8 inches
Farms--1978			
Number	39th	8,495	2,478,642
Land in farms	11th	33.7 million acres	1,029.7 million acres
Acreage per farm--1982	2nd	3,879. acres	433. acres
Average value of farm land & buildings per acre-1982	48th	$170	$788
Gross farm income--1981	37th	$.7 billion	$161.2 billion
Mineral production, value--1980	6th	$5.1 billion	$143.9 billion
Construction contracts, value--1981	43rd	$.6 billion	$150.2 billion
Manufacturing shipments, value--1980	46th	$2.8 billion	$1,850.9 billion
Manufacturing employment--1980			
Export related[3]	50th[2]	----[2]	3.6%
Defense related[4]	----	.3%	3.6%
Retail sales per capita--1977	3rd	$4,019	$3,291

[1]Per thousand resident population.
[2]Data suppressed. Did not meet publication standards.
[3]Percent of total private sector employment.
[4]Percent of all manufacturing employment.

Format

For data available at least quarterly, the last 12 quarters are printed in WQU. In this edition, published series begin with the 4th quarter of 1980, and end with the 3rd quarter of 1983. For other data series (primarily annual), the most recent observations, up to 12, are published in WQU. Most annual data series will reappear in WQU only when updated, or about every fourth issue. Quarters are calendar quarters. For example, the 3rd quarter is composed of July, August, and September. In the table headings and narratives, a particular quarter will be indicated by notation such as 2/80 (2nd quarter, 1980), 1/80 (1st quarter, 1980), and so on.

Beside each data series name is an abbreviation in parentheses. The abbreviation indicates the units (such as dollars, tons, feet, miles, etc.) of the data. The key to the units abbreviations is below.

Throughout WQU, all data are for the state unless otherwise stated. The most recent year's data should be viewed as preliminary, due to revisions. The acronymn "NA" signifies that information is not available.

The reader should be attentive to the footnotes at the bottom of pages, particularly those accompanying a data table. The footnotes help the reader to properly interpret the data, and they also indicate when more detailed (by subject or by area) data than that which is shown is available from IPR. A list of sources follows the footnotes.

Key to Units Abbreviations

MBF - Thousand Board Feet
TKWH - Thousand Kilowatt Hours
$ - Dollars
M$ - Millions of Dollars
B$ - Billion of Dollars
T$ - Thousands of Dollars
H$ - Hundreds of Dollars
ST - Short Tons
TST - Thousands of Short Tons
MCFD - Million Cubic Feet Per Day
TBPD - Thousands of Barrels Per Day
GL - Gallons
TCF - Thousands of Cubic Feet
KWH - Kilowatt Hours
TGL - Thousands of Gallons
HBBL - Hundreds of Barrels
HMCF - Hundreds of MCF Per Day
HST - Hundreds of Short Tons
$/ST - Dollars Per Short Ton

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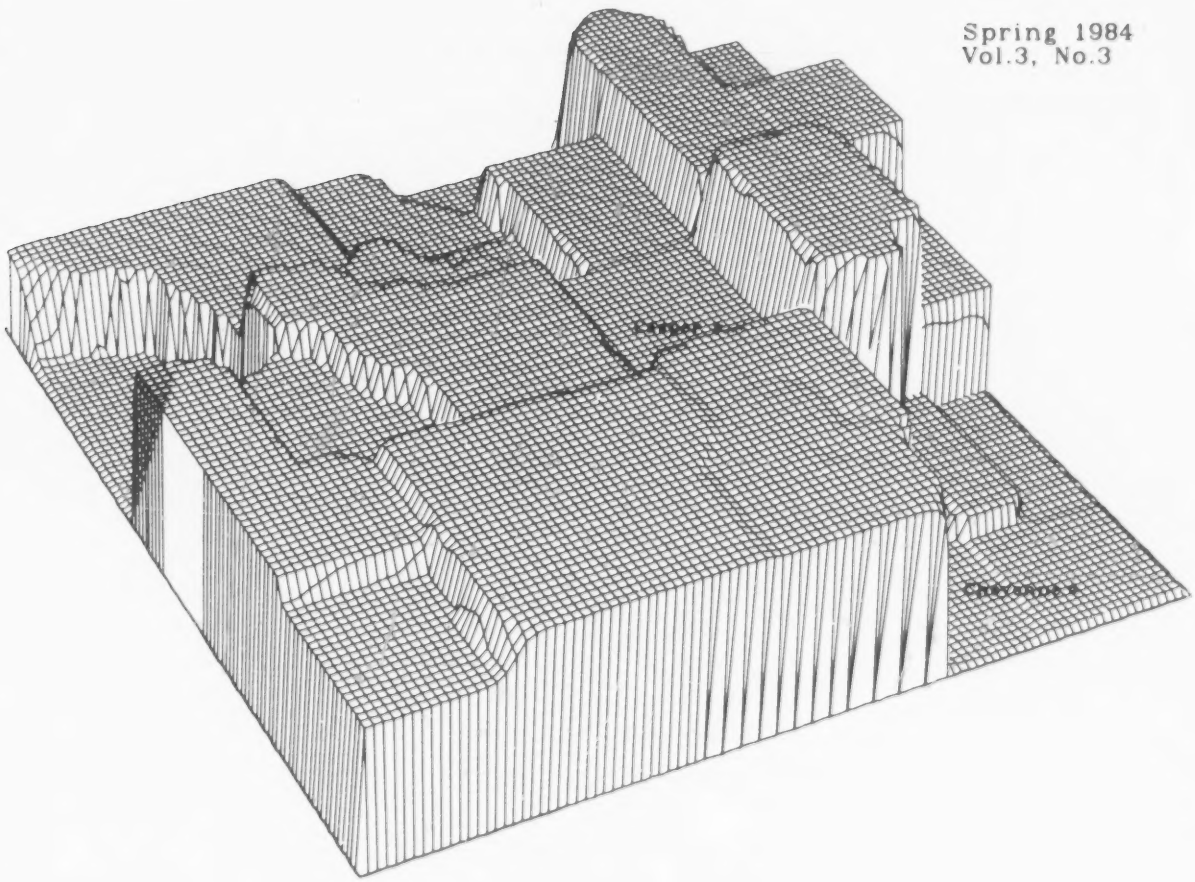
WYOMING QUARTERLY UPDATE

Spring 1984
Vol.3, No.3



IPR

Percentage of County Personal Income
Generated by the Mining Sector (1981)

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Institute for Policy Research
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Phil Kiner
Research and Statistics Division
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Wyoming Quarterly Update

Wyoming Quarterly Update (WQU) represents the efforts of the Institute for Policy Research (IPR) at the University of Wyoming to provide improved data access services. The data presented in WQU are assembled from secondary sources, such as government agencies and private industry. The staff of IPR greatly appreciates the ongoing cheerful cooperation of each of the data sources listed in the bibliography.

WQU provides current indicators and timely, easily accessible data. Most of the data published in WQU are updated quarterly with the most current numbers. The complete data sets from which WQU originates are maintained, together with documentation by IPR. Readers are encouraged to contact IPR to find out how to gain access to data which does not appear in the WQU. Many data series, such as gasoline sales and taxation data, span more than 30 years. Numerous other series cover 20 years or more.

Efforts to expand the subject and geographic detail (county data) of data sets will be made continuously. Featured for the ninth time in this edition are county profiles. Current data and discussions are presented for Johnson and Washakie counties.

The cover of each edition features a contour map illustrating the geographic distribution of a particular variable. This edition presents a contour map depicting the percent of county personal income generated by the mining sector in 1981.

First-time readers of WQU should refer to the "format" explanations on page -- for keys on how best to use and interpret data presented in this publication.

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UNIVERSITY OF WYOMING

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WYOMING SCENE

Overview and Perspective

Recovery momentum in the national economy continued to build through the first quarter of 1984, and the consensus among economists is that the economy should continue to gain ground. Economists are expecting a broader based recovery in 1984 than was experienced in 1983, with many indicators already pointed in that direction.

Employment rose in February. Nonfarm industries added 386,000 jobs, swelling total employment to 92.2 million. According to U.S. Department of Labor statistics, more than 70 percent of the 186 industries surveyed added workers to their payrolls during February. In addition, the factory workweek held steady at 41 hours.

Through the first quarter of this year, many companies still continued to have difficulty keeping pace with demand. Pressures on suppliers were manifested in higher prices across a broad spectrum of commodities and materials.

Business expansion continued on a course that indicates a strong second year of recovery. Plans for new plants and equipment could mean an increase in capital investment spending of 11 percent over 1983. Fourth quarter retail sales rose at an annual rate of 12.8 percent above the third quarter of 1983, and that trend seems likely to continue. Hardgoods, especially auto sales, have led the way. Auto sales rose at an annual rate of 8.5 million units in February, up from the 8.4 million-unit pace set in January. Durable goods orders were up 16.9 percent for 1983, the best showing since 1978. In addition, while there was some lag in softgoods manufacturing, expansion trends still were in evidence.

Deficits and high interest rates continued to be an area of potential concern. High demand for credit borrowing, plus the accelerated pace of business expansion, caused fears that inflation might be rekindled. Some higher prices are already appearing. The National Association of Purchasing Management (NAPM) observed that in February more of its members reported higher prices than in any month during the past three years. One positive note about high interest rates was that recent rises may be partially attributable to the boom in the economy, as a result of deregulation of the financial markets and bigger returns on company capital investments.

Economists remained generally optimistic about the economy during 1984, however.

Inflation is projected to rise about 4.9 percent, as measured by both consumer and producer price indexes. Total employment should increase and the unemployment rate should fall to an annual average of about 8.5 percent. Beyond 1984, however, the massive federal deficits and high interest rates could curb expansion.

The recovery in Wyoming continued to lag behind the nation as a whole, although signs of recovery were beginning to appear by late 1983.

In the tourist sector, 1984 Yellowstone Park visitations approximated those of 1983 (considered a banner year). Retail sales also continued to recover. By late 1983, sales tax collections were within 2 percentage points of year earlier figures.

Perhaps the best news, however, were signs of recovery in the minerals sector. Production increases for natural gas, coal, and trona were experienced in 1983, according to preliminary data released by the Wyoming Geological Survey (see minerals outlook). In addition, oil production offset the gradual decline that has been experienced since 1978.

Interviews conducted with industry and government leaders during the first quarter indicated that the declines in oil production should be offset in the near-term by new discoveries in the Thrust Belt area and elsewhere. In February 1984, 511 gas wells were shut-in due to lack of demand. Production should continue to rise throughout 1984 despite little new exploration because of gas already under development.

Agriculture, both sheep and cattle-raising, will probably continue to experience difficulties. Some industry observers, for example, suggest that cattle prices still could be $10-$15 too low per hundred weight to ensure real economic health.

Travel Commission officials anticipate that real growth in state travel spending could increase by 5-6 percent per annum. Due to the limits on the number of accommodations available in Yellowstone Park and Grand Teton Park, peak season visitations to those areas are not expected to grow substantially. However, the Wyoming Travel Commission expects some growth in "shoulder" season visitations, during both springs and fall.

S.T. Mast, IPR

# #

Spring Minerals Outlook

OVERVIEW

Finally, there are some really optimistic signs for many of the state's mineral industries, indicating that at least some declining mineral production may have bottomed out and already turned upward. Preliminary 1983 production figures for natural gas, coal, and trona all show increases above 1982 production levels. Oil production, which is very close to matching 1982 production, has offset the gradual annual decline in production that has typified Wyoming's oil production since 1978.

The real significance of 1983's production gains is not the number of tons, cubic feet, or barrels, but the fact that oil, gas, coal, and trona production all exceeded production forecasts for 1983. But why is that significant? Forecasters are not fallible by any means. Consider, however, that forecasting a turnaround point is one of the most difficult things to do. Everyone knew that production declines or slowing growth would eventually bottom out, but would that occur in one year, two years, or five years and at what levels? There is now every indication that four of the state's major mineral industries are on the upswing. This should substantially improve future forecasts of mineral production since the uncertainty of the turnaround point is gone.

In the last quarter of 1983 and the first quarter of 1984, both gypsum and bentonite production have shown gains as well. Only uranium and iron ore production have continued to decline. While uranium production is a shadow of what it was several years ago, the state's last iron ore mine has closed permanently. These latter two industries, however, are not simply the victims of the recent recession. The deteriorating domestic uranium and iron ore industries are a different matter altogether, and need not deter an optimistic outlook for the rest of the state's mineral industries.

The first quarter of 1984 seems an appropriate time for a more in-depth prognosis for Wyoming coal. Earlier this year the U.S. Department of Energy estimated Wyoming coal production at 116 million tons, and a well publicized press release noted that Wyoming had out-produced West Virginia to become the second largest coal-producing state. Wyoming's actual 1983 coal production turned out to be 112.2 million tons, which is very close to West Virginia's estimated 1983 production. The ranking of the two states, therefore, will await finalization of West Virginia's production, but Wyoming may well have placed second since West Virginia's production did fall substantially in 1983 while Wyoming's rose.

Whatever Wyoming's national ranking, it is more significant that the state's coal producers increased overall production 4 percent in 1983 at a time when most indicators suggested production would be lucky to match 1982. The 1983 production of 112.2 million tons was only 8 percent below estimated contract demand (122.6 million tons), not the 12 percent that we forecast. Eight percent is also an improvement over 1982 production, which was 9 percent below contract.

Admittedly, much of coal's gains occurred in the last two months of 1983, partially because cold weather had depleted many stockpiles. These gains, however, were substantially greater than seasonal increases in 1982 and probably reflect a renewed trend for demand to at least keep pace with contract minimums. The gains also occurred despite layoffs in both southern and northeastern Wyoming mines, and in the face of several mine closures in southern Wyoming.

Last year, we forecast 1984 coal production at 114 million tons. In view of 1983 production, our forecast for 1984 must be increased. If production remains within 8 percent of contract demand or improves even further, it could easily reach 118 million tons in 1984. This would translate into another 4 percent production increase in 1984 and set yet another production record for the state.

The short-term outlook for coal production is a 4-6 percent annual increase through 1988. Beyond 1988, there is a potential plateau in production since as much as 18.3 million tons of potential new power plant tonnage has been cancelled or postponed into the 1990's (Wyoming Quarterly Update, vol. 2, no. 4, 1983). Many of these cancelled or postponed plants were originally slated for the late 1980's and had planned to use Wyoming coal. Fortunately, production gains through 1988 are based on signed contracts for new power plants that are already under construction and coming on line between now and then, and which have been designed to burn subbituminous Wyoming coal. Although there have been some recent new contracts signed for the late 1980's, many of these are cannibalized contracts i.e., contracts that one Wyoming coal company has taken from another, and consequently represent no increase in gross tonnage.

It is probably too late for anything to alter the forecast plateau in coal production in the late 1980's because energy demand is not likely to grow quickly enough to prompt accelerated building of power plants--Wyoming's major coal market of this decade. There is also little to no chance that a synthetic fuels industry will create any significant market by the late 1980's. Of course, the "plateau" is

really not a disaster considering production by the end of this decade is slated to be 152 million tons, compared to the 112.2 million tons mined in 1983. This is still a 36 percent gain, and by then, power plants delayed until the 1990's will be seeking contracts for those new plants.

The Wyoming coal industry in the late 1980's, however, won't be marketing its coal reserves simply because they are low in sulfur. Scrubber legislation has deflated that marketing edge. Price has become the name of the game, and unless Wyoming coal producers remain competitive, they will loose more and more of the future markets. Texas already has a large lignite industry spawned to compete with the high delivered costs of Wyoming coal. Currently, Wyoming producers are forced to keep their mining costs low to offset long-haul transportation costs. They are doing this through increased productivity tied to the economy-of-scale made possible by the huge mines that are now commonplace in Wyoming.

Eventually, size alone will not increase productivity, and mining costs will have to increase. For comparison, coal in the Powder River Basin of Wyoming still sells for $6-$8 per ton at the mine. The national average for strip-mined coal is $21.46 per ton.

Here are some facts about coal's future in Wyoming. In the long-term, demand for Wyoming coal is good because the state's 1 trillion tons of coal represents 25 percent of the nation's coal resources. New power plants in adjacent states or in Wyoming will remain prime markets for Wyoming coal since transportation costs are minimized by shorter distances. Lowered or stabilized transportation costs resulting for competing railroads, slurry pipelines, or possibly thermal drying or other upgrading of coal prior to shipping could also improve the situation and extend or maintain Wyoming's present market area. Eventually, the synthetic fuels industry will also provide a market, but the timing of this industry is still speculative. As a bottom line, however, short of another incident such as the Arab Embargo of the last decade, price and aggressive marketing will be key factors in the potential growth of Wyoming's coal industry in the late 1980's and 1990's.

Gary B. Glass, State Geologist, Wyoming Geological Survey

COAL UPDATE

Preliminary figures from the State Inspector of Mines indicate that Wyoming's coal production for 1983 was 112.2 million tons (table 1), an increase of almost 4 percent over 1982's record production of 108 million tons. Our earlier forecast (Wyoming Quarterly Update, vol. 2, no. 2) that 1983 coal production would be about the same as 1982 production has turned out to be 3.7 percent too low. In retrospect, the increase in Campbell County was greater than expected (we predicted a 6 percent increase--the actual increase was nearly 9 percent) and more than offset production decreases in southern and southwestern Wyoming of nearly 10 percent. On a monthly basis, production was almost identical to that of 1982 until the last two months of the year. November and December production increased substantially, and accounted for much of the 4.2 million tons above our original estimate.

For the second year, the largest mine in Wyoming and in the United States was Black Thunder at 15.2 million tons. Black Thunder was followed by Belle Ayr, Jacobs Ranch, Eagle Butte, and Cordero mines. These mines all produced in excess of 10 million tons each; 9 other coal mines in the state produced over 2 million tons each. A total of 29 mines operated in the state in 1983 and employed 5,313 people, a decrease of 334 from 1982. In the Powder River Basin, the North Antelope coal mine in southern Campbell County began production in late 1983. In the Hanna Basin, the Vanguard No. 2 underground mine, which was active only in early 1982, was not active in 1983; the Rimrock pits were closed in early 1983 after only two months of production; and the Seminoe No. 1 mine, which did report production in 1983, was closed in early 1984.

Government and industry exploration for coal continued in 1983, but with fewer drill holes and less footage than in past years. Most of the drilling by the federal government was designed to evaluate specific tracts in anticipation of future coal leasing; several holes were drilled for research and correlation purposes. There was no federal coal exploration done under contract in Wyoming last year. The Geologic Division of the U.S. Geological Survey (USGS) drilled a total of 3,169 feet in three drill holes in Campbell and Sheridan counties. Of this total, 229 feet in one drill hole were cored.

The U.S. Bureau of Land Management (BLM) drilled seven coal exploration holes in the Hanna Basin, eight in the Great Divide Basin, 10 in the Wind River Basin, 11 in the Bighorn Basin, and 14 in the Powder River Basin. These 50 holes totaled 19,797 feet; of these totals, 12 core holes were drilled and 1,691 feet of core were recovered. Collectively, the USGS and BLM drilled 53 holes totaling 22,996 feet; of this total, 13 holes were cored for a total of 1,920 feet of core.

In 1983, coal exploration by private industry on federally-owned coal resulted in the drilling of 506 drill holes for a total of about 94,830 feet. These federal statistics do not include development drilling and blast hole drilling on leases currently in production, nor do they include drilling of water observation wells, soil test boring, or drilling for the delineation of burned-out coal areas (clinker areas). Drilling statistics on state and privately-owned coal were not available.

Only seven federal exploration licenses, held by six companies, were in effect at the end of 1983. Those companies included Sparrow Coal, Ark Land, Rocky Mountain Energy, NERCO, Anaconda Minerals, and Northwestern Resources, and their licenses encompassed an area of about 56,850 acres. During the year, nine exploration licenses covering 59,924 acres expired, and four exploration licenses covering 6,877 acres were issued. An additional seven applications for federal exploration licenses, totaling 23,530 acres were awaiting approval, and one application was rejected.

Coal exploration activities in the state may be affected by the temporary moratorium on federal coal leasing which begin on October 1, 1983. The moratorium will continue at least until the middle of May 1984, three months after the Linowes Commission's report on coal leasing is submitted to Congress. The commission was formed as a result of other investigations of federal coal leasing policy that followed the controversial 1982 Powder River Basin coal lease sale.

Richard W. Jones, Coal Geologist, Wyoming Geological Survey

OIL AND GAS UPDATE

Don Basko, supervisor for the Wyoming Oil and Gas Conservation Commission, said preliminary estimates of oil production in 1983 were 117 million barrels, which is only slightly below last year's production and which nearly offsets the steady decline that has been characteristic of Wyoming oil production since 1978. Natural gas production increased about 42 billion cubic feet over 1982, making 1983 production in excess of 507 billion cubic feet. He also noted that development of western Wyoming's Thrust Belt accounts for much of these increases.

Rocky Mountain well completions dropped 35 percent in 1983, from 8,214 wells in 1982 to 5,444 in 1983, according to Petroleum Information Corporation's year-end statistics. The completion figures for Wyoming are listed below:

WYOMING 1983 WELL COMPLETIONS

New Field Wildcats

	Oil	Gas	Dry	Total
1983	23	13	305	341
1982	68	28	404	500

All Wells

	Oil	Gas	Gas	Total
1983	698	152	550	1,400
1982	1,029	272	827	2,128

Wyoming's 34 percent decline is identical to the decrease recorded for the overall Rocky Mountain region. With 1,400 total completions, Wyoming was second to Colorado's 1,508 total. Because of gas price regulations and oversupply, exploration and development have substantially shifted to oil.

After topping 140, the rig count in Wyoming has dropped back to 115 (February 27, 1984). This drop, however, is attributed to the usual winter lag, and the general consensus

1983 WYOMING COAL PRODUCTION BY COUNTY AND BY COAL BASIN[1]

County	Production	Percent of Total Production	Number of Mines	Number of Employees
		POWDER RIVER BASIN		
Campbell	88,180,758	78.6	14	2,610
Converse	2,684,011	2.4	1	247
Sheridan	2,947,698	2.6	2	214
Total	93,812,467	83.6	17	3,071
		GREEN RIVER BASIN		
Sweetwater	9,471,416	8.4	3	994
		HAMS FORK REGION		
Lincoln	4,040,435	3.6	2	477
		HANNA BASIN		
Carbon	4,818,465	4.3	6	767
		BIGHORN BASIN		
Hot Springs	45,091	<0.1	1	4
Total Wyoming	112,187,874	100	29	5,313

[1]Source: Wyoming State Inspector of Mines, preliminary data from 1983.

is that oil activity in Wyoming is now on the upswing.

In February, the State Land Board demanded royalty payment on flared gas from two Newcastle companies and stated that these demands would continue until the industry proves that the state is wrong in laying claim to flared gas. By early March, the board revised that decision and said their demand would be on a case-by-case basis since there are circumstances where flaring is not waste, where alternatives to flaring would result in less revenue to the state and unwarranted economic hardship to operators.

A nearly four-month-old moratorium on federal oil and gas lease lotteries was lifted by Secretary of the Interior William Clark on January 31. The moratorium followed allegations of mismanagement of leases by the U.S. Bureau of Land Management (BLM) in the Amos Draw area. Procedures for identifying "known geologic structures" (KGS's) and adjacent leases have been expanded to prevent known valuable tracts from being included in the lottery system rather than in the competitive bid system. Secretary Clark estimated that it would be four to six weeks before the lottery resumes.

The February 1984 BLM lease sale in Wyoming totaled $7 million in successful bids. One bid by Amoco totaled $6.1 million for a Thrust Belt parcel 10 miles south of Evanston. Another parcel near Amos Draw field in Campbell County brought $858,640 as the high bid by Amoco.

Wyoming, which replaced its oil and gas lease lottery with an auction, netted $4.5 million from its two auctions in 1983, and an additional $2.3 million in January of this year. Wyoming's next auction, which is by oral bidding, is scheduled for March 1984. For comparison, in six months the state received $6.8 million dollars in auction bids for 388 parcels, which is $1.5 million more than was generated by the 375 parcels offered in the last six months of the lottery. Each auction has included about 100,000 acres of land.

In late December 1983, the Frontier Pipeline began delivering Thrust Belt crude oil to the Amoco refinery in Casper. Although the line will initially deliver 5,000-15,000 barrels of oil per day, its capacity is 77,000 barrels per day, expandable to 150,000 barrels per day. Initial delivery volumes could be expanded if other refineries in Casper make arrangements to purchase Thrust Belt crude.

In late December, Amoco announced completion of a Permian Phosphoria discovery in a sub-granite structure near the shallow-producing Sheep Creek field northwest of Muddy Gap. Production tests indicated 5-172 barrels of oil and 85,000-180,000 cubic feet of gas per day on pump. This is another important sub-thrust discovery similar to the Teepee Flats discovery on the east side of the Wind River Basin.

Celsius Energy announced completion of a high volume gas discovery in the southeastern corner of the Washakie Basin, four miles north of Cedar Breaks field. This well was completed in the Upper Cretaceous Mesaverde Formation for 10 million cubic feet of gas per day from a depth of about 12,500 feet.

Louisiana Land and Exploration recently completed a high volume oil producer in the Mexican Springs field, two miles south of Turnercrest, Wyoming. The well was completed in the Lower Cretaceous Dakota Sandstone, flowing 2,241 barrels of oil and 3.3 million cubic feet of gas per day. This is the fifth high volume well completed in the field since its discovery in mid-1983, indicating another significant addition to the oil reserves of the Powder River Basin.

The Wyoming Oil and Gas Conservation Commission hearings on new seismic rules, originally set for January 1983, were postponed until March 13. In response to numerous comments that have been received, an alternative set of new rules were proposed by the staff of the commission. In essence, the alternative rules require a permit for all seismic lines using shot holes and blasting. Under the proposed rules, in addition to fining companies that fail to properly plug holes, the commission would be able to revoke or deny permits to those companies that ignored plugging rules. At the hearing in March, the commission will accept written and oral comments on its proposed seismic rules.

At press time, the 1984 Wyoming Legislature was considering an appropriations bill that would fund an Enhanced Oil Recovery Research (EOR) Center at the University of Wyoming. The bill contained $233,410 for the EOR Center, which would be housed at the University's Petroleum Engineering Department. Wyoming has an estimated 10 billion barrels of oil recoverable by enhanced recovery techniques. (Barlow, J.A., Jr. and Doelger, M.J., 1983, Wyoming mineral resources: Barlow and Haun, Inc., Casper, 14 pages).

Alan J. VerPloeg, Petroleum Geologist, Wyoming Geological Survey

URANIUM AND INDUSTRIAL MINERALS UPDATE

Uranium

Five uranium mines continued production in Wyoming as of March 1, 1984. There have also been layoffs by Pathfinder and Exxon. Pathfinder at the Pathfinder-COGEMA Lucky Mc Mine in the Gas Hills of Fremont County laid off 26 workers. Also, rather than operating continuously, the mine will shut down four days out of every 10 days.

Exxon, which continued to process uranium at the Highland Mill in Converse County, laid off 25 workers as operations there move toward a complete shutdown. The mine was closed in late 1982, but Exxon continues to process stockpiled ore.

The U.S. Department of Energy (DOE) is changing its uranium enrichment procedures to allow for less expensive processing techniques. Processing uranium oxide to nuclear fuel at a lower cost may lower fuel costs to users and would also increase the amount of foreign uranium enriched by the United States. The uranium enrichment process increases the content of the fissionable isotope U_{235} from 0.74 percent found in natural uranium to 3 percent for reactor grade fuel (compared to more than 90 percent for weapon grades). These

changes are expected to take effect after industry comments are received.

Because uranium mills in Wyoming produce uranium oxide, the effect of DOE's decision on the Wyoming uranium industry is likely to be very small and indirect. It is possible that lowered fuel costs might stimulate some renewed interest in Wyoming's ores. The decision is not likely to affect uranium prices, which are now $20.50 per pound, compared to $23.00 in 1983.

In 1983, exploration for uranium in Wyoming was principally conducted in known uranium districts. Companies including Adobe, AGIP, American Nuclear, COGEMA, Everest, Homestake, Rocky Mountain Energy, Sequoyah, Teton, Union Carbide, Uranerz, Uranium Resources, and Western Nuclear drilled exploratory wells in the Gas Hills, Crooks Gap, Red Desert, Poison Basin, Shirley Basin, Southern Powder River Basin, Pumpkin Buttes, and the Northern Black Hills districts.

Malapai Resources continued development drilling on their Petersen Ranch properties in the southern Powder River Basin. Buttes Oil and Gas conducted exploratory drilling along the east margin of the Green River Basin southeast of Green River, and Sequoyah drilled a possible unconformity-related uranium target east of Rawhide Buttes in east-central Wyoming. Drilling activity was about the same as last year, with less than 20 rigs active at any one time--a change from 1978 when literally hundreds of rigs were active. A few companies, including Atlas and Homestake, continued to conduct basic uranium reconnaissance in Wyoming.

The Geological Survey of Wyoming is also conducting research on the uranium deposits of the state. There is potential for nonconformity-related, paleoplacer and various types of igneous uranium deposits. This research should assist the search for large, high-grade uranium deposits in Wyoming. The discovery of high-grade uranium deposits would enhance the chances for successful competition with Canadian, Australian, and other foreign uranium producers.

Thorium and Rare Elements

The United States Geological Survey announced the results of research into the large thorium and rare-earth element reserves in the Bear Lodge Mountains near Sundance in northeastern Wyoming (Staatz, M.E., 1983, Geology and description of the thorium and rare-earth deposits in the southern Bear Lodge Mountains, northeastern Wyoming: U.S. Geological Survey Professional Paper 1049D, 52 p.). Research at the Geological Survey of Wyoming has located other areas in the Bear Lodge Mountains that may contain rare-earth and thorium occurrences (Harris, R.E., 1983, Bedrock geologic map of the Bear Lodge Mountains alkaline complex, Crook County, Wyoming: Geological Survey of Wyoming Open File Report 83-3, 1 sheet). Tantalum, niobium, and rare-earth element occurrences in the northern Bighorn Mountains also attracted some industry interest in 1983.

Trona

Preliminary production figures released by the Wyoming State Inspector of Mines show that last year's trona production increased to 11,589,345 tons, about 6 percent more than 1982 production. Although this production is below the record years of 1979, 1980, and 1981 when production was closer to 12,000,000 tons, it has reversed the trend of declining production. Most of the production gains in 1983 occurred during the fourth quarter, with December production 20 percent greater than December of 1982.

FMC's proposed solution mining of trona has been opposed by Tenneco, which has challenged the legality of solution mining on environmental grounds. The outcome of this dispute has not been resolved.

Other Industrial Minerals

The production of gypsum and bentonite increased towards the end of 1983, reflecting an upturn in the national and regional economy. While gypsum production reflected increased housing construction, bentonite production increased because of greater steel production from Minnesota taconite.

The production of sand and gravel, crushed rock, and clinker reflected seasonal lows in construction for the region. In 1983, there was continued exploration for industrial minerals currently produced in Wyoming, as well as for some commodities that may be produced in the future. Producers of trona, bentonite, gypsum, construction aggregates, limestone and dolomite, sodium sulfate, and sugar rock developed their reserves as the economy improved, and production of all of these materials increased.

There was some exploration for silica deposits in the state, particularly in southern Wyoming where the production of soda ash from trona would make a glass plant economically attractive.

A few companies were active in the anorthosite area of southeastern Wyoming. The anorthosite may be a suitable substitute for nepheline syenite, currently imported from eastern Canada. This material is used in glass and ceramics, mill fluxes, and as a source of alumina. Alcoa maintained its property position in the anorthosite and continues to test the rock for its use as an aluminum ore.

Phosphate in the Permian Phosphoria Formation in the Thrust Belt of western Wyoming continued to attract interest as phosphate leases were renewed and new areas were leased in 1983. Stauffer Chemical Company continued to process phosphate at Leefe, Wyoming, from material mined in Idaho.

There was increased interest in zeolite exploration in 1983. Wyoming contains large natural zeolite reserves in the Washakie Basin, Lysite Mountain, and Beaver Rim areas. Many companies explored and acquired properties in these areas.

Ray E. Harris, Uranium and Industrial Minerals Geologist, Wyoming Geological Survey

METAL AND PRECIOUS STONES UPDATE

During the first quarter of 1984, weather slowed exploration activities for metals and diamonds. There was some drilling for strategic metals in the state when the weather permitted, and a local prospector made an apparent rich lode gold discovery at an undisclosed location in Wyoming. Numerous samples containing visible free gold have been recovered. Otherwise, most companies were simply planning their exploration projects for the coming field season.

Some mineral deposits, probably targeted for exploration in 1984, were described in Geological Survey of Wyoming Reprint 44 entitled, "Metallogeny of some Wyoming Deposits". This paper was reprinted from the 1983 Colorado Mining Association Yearbook and includes a discussion of exhalitive stratiform gold deposits. The important auriferous quartz veins and iron-formations discovered in 1981 at Bradley Peak in the Seminoe Mountains were of this type. According to preliminary field work by the Geological Survey of Wyoming, similar exhalitive deposits may also occur in the Hartville Uplift and in the Copper Mountain area of the Owl Creek Mountains.

In the Copper Mountain area, south of Thermopolis, a minimum of eight miles of fairly continuous iron-formation, and possibly as much as 12 miles of continuous iron-formation, were mapped by the Geological Survey of Wyoming. Because sediments covered a portion of the iron-formations, their total extent is uncertain. At some localities, the iron-formations exhibit evidence of remobilization and contain zones enriched in copper and iron sulfides. Although no gold has been detected in these iron-formations, they have not been adequately sampled. At a few localities near the iron-formations, nearby stratiform quartz veins, or cherts, that have been sampled for base and precious metals yielded interesting values in both copper and gold. At the historic DePass Mine on the eastern edge of Copper Mountain, reconnaissance surface and underground mapping have identified potential copper, gold, and silver resources.

In 1984, Cominco American Incorporated will continue to explore for diamondiferous kimberlite in Wyoming. Diamond exploration by the Geological Survey of Wyoming is also planned for the 1984 field season. The Geological Survey's stream sediment sampling program identified two regions particularly worthy of further investigation--the Sheep Rock and Happy Jack areas of the southern Laramie Range in Albany and Laramie counties. These areas will receive considerable attention in 1984.

W. Dan Hausel, Deputy Director, Wyoming Geological Survey

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Spring Agricultural Outlook

U.S. agriculture will likely continue to recover in 1984. Net farm income, unadjusted for inflation, is forecast at $29 to $34 billion in 1984, up from 1983's estimated $22 to $24 billion, and approaching the recent highs of $32.3 billion in 1979 and $30.1 billion in 1981. While the value of U.S. farm exports is expected to improve, however, improvement will come slowly because of the fragile growth in the world economy. Meanwhile, an expanding U.S. economy is projected to strengthen domestic demand without unduly increasing production costs in 1984.

Livestock Highlights

Total red meat and poultry supplies are expected to remain large through early spring. Total red meat production is expected to drop below a year earlier in the second quarter and into the second half of 1984. Poultry production, however, is expected to rise above 1983 levels, as favorable prices and anticipated reduced red meat supplies encourage expanded broiler production.

Beef

Currently, it appears that total beef supplies will be below 1983 levels. The January 1, 1984 U.S. cattle inventory report estimated all cattle and calves at 114.0 million head. This was down more than 1 million head from 1983, and marked the second year of reduction in total numbers after a three year building phase in the current cattle cycle. Beef cow numbers were down 1 percent, and producers indicated they had 2 percent fewer heifers for replacement to the beef herd.

The 1983 calf crop was estimated at 44.1 million head, down 1 percent from 1982. Three years of lower calf crops set the stage for less beef production during the next couple of years.

The smaller supply of beef does not mean the seasonality of that supply will be the same in 1984 as in 1983, however. Supplies of beef in the first half of 1984 likely will equal or exceed supplies experienced in the first half of 1983. Beef supplies in the second half of 1984 are expected to be below 1983 levels. The greatest reduction should occur during the third quarter, but fourth quarter supplies also are expected to be below 1983 levels.

Some price strength for fed cattle is expected during the second quarter of 1984, with prices pushing $70 for most of the quarter. After a high in May or early June in the low $70's, fed steer prices are expected to drop to the low to mid $60's this fall.

Wyoming feeder cattle producers experienced higher than expected wintering costs due to the prolonged winter. Higher prices are expected this spring and fall, however, and this should allow at least breakeven returns to the combined wintering-summering operations. The extreme low prices noted last September are not expected this fall. Feeder cattle prices should follow the same pattern as fed cattle. Highest prices are expected this spring and some decline is expected for the fall. Feeder calf prices this fall are projected to be in the low to mid $70's, assuming the corn belt does not experience another severe drought this summer.

Grain Highlights

Production of corn for grain in 1983 was estimated by USDA at 4.2 billion bushels, half as large as the record 8.36 billion bushels produced in 1982. The 1983 corn crop was the smallest since 1970. This large production decline in 1983 was the combined result of a major drought across the Corn Belt plus reduced acres harvested because of the payment-in-kind acreage reduction program. Because the U.S. has not experienced back to back droughts in the past 50 years, a repeat of 1983 is not expected.

USDA's 1984 "prospective planting" report showed intended corn plantings this spring of 81.78 million acres, up 36 percent from the 60.19 million acres planted in 1983. The sharp increase comes from lower participation in the government programs when compared to the active participation last year in PIK.

Although feed grain prices are expected to move seasonally higher this spring, such strength is expected to be short lived if actual plantings come in close to intended plantings and normal growing conditions allow for average or above average yields.

All in all, lower trending feed costs are projected for livestock producers for most of the last half of 1984. If the lower feed prices are realized, prices paid for feeder animals should be supported during much of the last half of this year.

Robert D. Carver, University of Wyoming

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Job Openings Outlook

Respiratory Therapists

There is a shortage of qualified respiratory therapists in Wyoming. The job outlook depends on the replacement of those who leave the occupation, availability of training programs, the number of trained workers moving into the state, advances in technology, and the growth of health services. Shortages are expected to continue, due to limited training opportunities in Wyoming. An inflow of out-of-state workers could create competition for jobs, but because of increasing advances in technology, increasing demand for specialization (newborn care and cardiopulmonary technology), and the growth of health services, this will not occur for some time.

Nationally, employment is expected to grow much faster than average for all occupations as a result of population growth, greater health consciousness, and widespread accessibility of hospital and surgical care through public and private health insurance.

There are two levels of employment in the field of respiratory therapy, the therapist and the technician. Formal education programs for technicians last from 18 to 24 months. Therapist programs last from 3 to 4 years. In Wyoming, limited training opportunities have resulted in some therapists and technicians receiving on-the-job training. Also because there are so few trained therapists in the state, many technicians are performing therapist duties.

Although registration for therapists and certification for technicians are not required, they are strongly recommended for employment. Employers report a strong demand for registered therapists and certified technicians, although most workers in Wyoming have neither.

There are approximately 120 therapists and technicians in Wyoming. The major employers are hospitals, medical clinics, ambulance services, nursing homes, and sometimes private individuals. The average entry wage is between $7.50-$8.00 per hour. Average wages for those with experience range from $10.30-$11.40 per hour.

Shoe Repairers

There is a shortage of shoe repairers in Wyoming. The job outlook depends upon consumer demand for shoe repair and the availability of training opportunities. Currently in Wyoming, there are no training programs, limiting the supply of qualified applicants. Some sources report that as the price of new shoes continues to rise, the demand for repairing old shoes will increase, increasing the demand for repairers.

In Wyoming, repairers typically begin their careers as helpers and learn their skills through informal on-the-job training. The length of training varies from six months to one year. On-the-job trainees start at about $3.35-$4.00 per hour. With experience, the average beginning wage is about $5.75 per hour. Wages for experienced shoe repairers range from approximately $8.75-$10.00 per hour. Depending on the volume of business, some shoe repairers can earn more.

This is a very small occupation, with less than 50 shoe repairers in Wyoming. Most are self-employed.

Electronics Technicians

There is a shortage of qualified electronics technicians in Wyoming. The outlook for this occupation depends on the level of economic activity for electronics industries, replacement of those who leave the occupation, and the opening of new electrical and electronics manufacturing industries. New manufacturing industries will generate openings for technicians. Although there has been an inflow of trained out-of-state workers, continued advancements in computer technology and limited training opportunities create a demand for qualified electronics technicians.

The entry level wage is approximately $800 to $1,000 per month. Technicians with experience earn between $1,300 to $1,970 per month. Technicians specializing in areas such as bank or government security systems or telephonics earn a higher wage.

There are approximately 850 technicians in Wyoming. Most work for electrical and electronics manufacturing industries.

For additional information, contact Karen P. Scott, Wyoming Career Information System, Student Educational Opportunity, 1-307-766-6189.

Karen Scott, Wyoming Career Information System

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Forecasting State Sales Tax Revenues

(Editor's note: The projections made do not include the out-of-state sales tax collections category.)

1. Introduction

This article will attempt to thoroughly explain and delineate an econometric model which was developed for the purpose of forecasting state sales tax revenue. Table 5 presents forecasts of sales tax collections for fiscal years 1984 and 1985. In addition to the obvious desire to forecast sales tax revenues accurately, the goal in developing this model was to create a model which was both econometrically sound and practical to use. Thus, it is hoped that this article will convey to the reader the usefulness and limitations of this model.

The following section will formulate a model by specifying and discussing economic variables which might be related to the amount of sales tax revenue collected. The sources of data for these variables and relevant forecasting period will be discussed in section 3. The statistical estimation of the model and success of the forecast of sales tax revenue will be presented and analyzed in section 4. Section 5 concludes the article with some summary comments and suggestions for improvement of the model. While considerable technical detail is presented, the nontechnical reader interested in the outlook for sales tax collections also should benefit by a general review of this material.

2. Model

The amount of sales tax collected can be thought of as being largely determined by the economic conditions in the state. Since economic conditions fluctuate year by year, some attempt must be made to account for these fluctuations when forecasting sales tax revenue. An economic variable which may in part determine these fluctuations in Wyoming is the price of oil in the world market. As the price of oil rises in the world market, drilling activity in the state should increase and, hence, economic activity should increase. These fluctuations in the state's economy may also be manifested in changes in population, employment, per capita income, and unemployment.

Since the purpose of the model will be to establish behavioral relationships, these variables will be related to gross sales tax collection[1]. Furthermore, for reasons to be discussed later, the analysis will occur at the county level and then will be aggregated for the total sales tax collection for the state. The model can be represented mathematically as follows:

$$TAX = f(POP, PCINC, EMP, UNEMP, OIL, OPT)$$

where

TAX = total sales tax collected
POP = total population
PCINC = per capita income
EMP = total employment
UNEMP = average unemployment rate
OIL = average wellhead price of oil per barrel
OPT = 1 if county employs a 1 percent option tax; 0 if not

3. Data Sources and Relevant Forecasting Period

The period for which the relationships between the right-hand side variables specified and sales tax revenue is thought to be appropriate for forecasting future sales tax revenue is 1973-1983. The years for which sales tax revenue is being forecasted are fiscal years 1984 and 1985. The data for population and income for 1973 to 1981 was obtained from the Bureau of Economic Analysis (BEA)[2]. Estimates of population for 1982 through 1985 are from the Wyoming Department of Fiscal Control, Research and Statistics Division[3]. Total income for 1982 through 1985 was estimated, since estimates for 1982 and 1983 are not currently available from BEA, and income for 1984 and 1985 is not forecasted[4]. Employment and unemployment data for 1973-1983 was obtained from the Employment Security Commission of Wyoming, Research and Analysis section[5]. For estimates of 1984 and 1985 employment levels, the percentage forecasted increases in employment by DAFC were applied to the past counts by ESC. Projections of unemployment for 1984 and 1985 are based on the trend at the end of 1983. The average wellhead price of oil can be found in a publication by the American Petroleum Institute[6]. Finally, sales tax revenue for 1973-1983 was obtained from the annual reports of the Department of Revenue and Taxation[7].

4. Estimation of the Model

Data used for the analysis is in the form of time-series for 11 years and cross-sectionally for the 23 counties in Wyoming. Because there are not sufficient observations to estimate either a single-time series for the state or separate cross-section equations, a method of combining the data known as "pooling" was employed. Furthermore, an advantage of forecasting the counties separately and then aggregating them for the state total is that an assumption of ordinary least squares (OLS) is that the sum of the residuals is zero. Thus, the errors in forecasts at the county level should tend to offset each other.

The relationships were first estimated using OLS in the econometrics computer program, TSP (see Hall and Hall, 1980). Three different structural forms of the model were specified and estimated. They are: (1) linear, (2) semi-log, and (3) double-log. The double-log specification yielded the most accurate ex ante

and ex post forecasts for 1982 and 1983. Thus, this is the form that will be used to forecast for 1984 and 1985. The classical assumptions of OLS, however, such as homocedasticity and absence of serial correlation may not hold in the case of pooled data. The disturbance term in pooled data is likely to consist of time-series related disturbances, cross-section disturbances, or a combination of both (see Pindyck and Rubinfeld, 1981). Thus, OLS may yield inefficient estimates of the parameters and possibly bad forecasts. This led to the use of the "cross-sectionally heteroskedastic and time-wise anforegressive model" as specified by Kmenta 1971 (pp. 509-512). This procedure is automated in the econometrics computer program SHAZAM (see White, 1978). Essentially, this procedure corrects for the heteroscedasticity and autocorrelation before estimation. The ex post forecasts obtained from this procedure, however, were not more accurate than the forecasts under OLS. Therefore, in the interest of simplicity OLS estimation in the double-log form was used.

The results from the OLS estimation are presented in table 1. The first six variables are the explanatory variables presented in Section 2. Then 22 intercept shifts and 22 slope shifts follow. These were included to allow the relationships between the explanatory variables and sales tax revenue collection to differ among the counties. The intercept shifts were accomplished with the use of dummy variables for all counties but one, while the slope shifts were accomplished by multiplying all right-hand side variables by these dummy variables and including them as explanatory variables. The county which was omitted from these shifts was Niobrara and its effect is captured in the constant term.

As can be seen from table 1, the results indicate positive elasticities for per capita income, per capita employment, population, the price of oil, and the use of the local option tax[8]. Furthermore, with the exception of per capita employment, these elasticities are all significantly different than zero at the .05 level[9]. Unemployment has a negative elasticity but is not significantly different than zero. Of even more interest is that population has an elasticity that is significantly greater than one. Thus, it can be said that a 1 percent change in population will yield a 1.44 percent change in sales tax. The other coefficients have similar interpretations. It also can be seen that many of the slope and intercept shifts are significant. Although these shifts improve the performance of the model, a valid criticism is that one does not know why these differences among the counties exist.

Before proceeding to use this equation to forecast for 1984 and 1985, it is useful to see how well the model would have out-of-period forecasted 1982 and 1983 with both ex ante and ex post data[10]. There was a larger than usual increase in sales tax collection in 1982 and a sudden drop in 1983. Thus, the model will be tested as to whether it can capture these changes in the trend. Table 2 presents the forecasts with ex ante data, while tables 3 and 4 present the forecasts with ex post data and comparisons to the actual values for 1982 and 1983 respectively.

As can be seen from table 2, the ex ante forecast for 1982 was 2.57 percent over the actual collection. The forecast for 1983, though, was 13.12 percent over the actual collection. The model did, however, predict a downturn in sales tax collection for 1983. Tables 3 and 4 show that using ex post data greatly improved the forecasts for both 1982 and 1983. The aggregate error for 1982 was 1.86 percent, while the aggregate error for 1983 was 4.9 percent. This result suggests that the forecasts can be accurate if the values used to forecast sales tax collections are forecasted accurately.

The forecasts for total collections and amounts going to the general fund for fiscal years 1984 and 1984 are given in table 5. The general fund forecast for 1984 is $92,768,324 while the general fund forecast for 1985 is $97,419,043. These forecasts, however, are based on the price of oil remaining the same, nominal income rising slowly, unemployment remaining the same as the end of 1983, and modest gains in total employment and population. Other values could be substituted for these variables if indicated.

5. Summary Comments

This article has established that important relationships do exist between key economic variables such as population, employment, unemployment, per capita income, the price of oil, and sales tax revenue collected. Though the ex ante forecasts were not satisfactory, particularly for 1983, one ex post forecast points to the usefulness of the model, given accurate values for the right-hand side variables. Besides the obvious need for good data, there are other possible modifications of the model which may improve its forecasting performance. They include: (1) forecasting the independent variables in fiscal years to better tie the timing of the impacts of these variables to fiscal year sales tax collection, (2) disaggregating the sales tax data by removing sales tax collected due to tourism and forecasting that separately, and (3) exploring the possibility of using other variables that are of a leading economic indicator type, such as the price of oil in this model.

Dan Rickman, University of Wyoming Department of Economics

Footnotes

1. Data for the independent variables are calendar year statistics while the sales tax collection which it is being regressed by is for the fiscal year. The reason for this is due to the unavailability of monthly data for all independent variables. The price of oil is lagged one calendar year.

2. Series 5: Regional Economics Information, Bureau of Economic Analysis. Population data included in table of "Personal Income by Major Success."

3. Department of Administration and Fiscal Control, Division of Research and

Statistics, State of Wyoming. 6th Edition, Cheyenne, WY July, 1983.

4. The trend for personal income between 1981 and 1982 as reported by Business Week was applied to the 1981 estimates of total income by BEA to obtain the estimates for total income in 1982 and 1983. I project a 2 percent nominal increase in income for 1984 and 1985.

5. Annual Reports for 1973-1982 of the Employment Security Commission of Wyoming, Research and Analysis Section.

6. These values can be found by calling the Oil Geologist at the State Geologist's office.

7. Annual Reports for 1973-1983 of the Department of Revenue and Taxation, State of Wyoming.

8. Coefficients in a double-log equation are elasticities since $(d \log Y)/(d \log X) = (dY/Y)/(dX/X)$.

9. Per capita employment was used instead of employment because of the severe multicollinearity indicated by the Farrar-Glauber Test in TSP (Farrar and Glauber, 1967). The presence of multicollinearity makes the interpretation of the individual effects of the independent variables very difficult.

10. Unemployment data was used ex post in both cases.

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Table 1: Results of OLS Estimation
Dependant Variable - Log (sales tax collected) R - squared - 0.996 Adjusted R - squared - 0.994 Durbin - Watson Statistic - 1.4698.

Independent Variables	Coefficients	T-statistics
Intercept	-3.74	-4.18
Log (Population)	1.44	17.06
Log (Per Captia Income)	0.80	11.86
Log (Per Capita Employment)[9]	0.11	1.01
Log (Price of Oil)	0.24	7.88
Use of Options Tax	0.11	4.34
Log (Unemployment)	-0.02	-0.60
Intercept Shifts for:		
Albany	-0.75	-3.45
Big Horn	-.52	-3.56
Campbell	0.35	2.58
Carbon	-0.47	-2.84
Converse	-0.26	-2.31
Crook	-0.49	-5.80
Fremont	-0.75	-3.35
Goshen	-0.42	-2.80
Hot Springs	0.15	1.98
Johnson	-0.08	-.90
Laramie	-1.24	-4.37
Lincoln	-.74	-5.55
Natrona	-0.62	-2.45
Park	-0.41	-2.3
Platte	-0.19	-1.8
Sheridan	-0.65	-3.56
Sublette	-0.11	-1.36
Sweetwater	-0.45	-2.28
Teton	0.76	6.59
Uinta	-0.57	-5.43
Washakie	0.21	1.75
Weston	-1.33	-1.41
Slope Shifts for:		
Albany	$.37 \times 10^{-2}$	4.03
Big Horn	$.28 \times 10^{-2}$	3.10
Campbell	$.87 \times 10^{-2}$	4.77
Carbon	$.11 \times 10^{-2}$	1.75
Converse	$.37 \times 10^{-2}$	3.60
Crook	$-.16 \times 10^{-2}$	-1.70
Fremont	$.14 \times 10^{-2}$	2.27
Goshen	$.40 \times 10^{-2}$	3.49
Hot Springs	$-.55 \times 10^{-4}$	-0.06
Johnson	$.13 \times 10^{-2}$	1.23
Laramie	$.21 \times 10^{-3}$	2.89
Lincoln	$-.56 \times 10^{-2}$	-0.99
Natrona	$.15 \times 10^{-2}$	1.96
Park	$.29 \times 10^{-2}$	2.21
Platte	$.30 \times 10^{-2}$	4.04
Sheridan	$.23 \times 10^{-2}$	3.48
Sweetwater	$.25 \times 10^{-2}$	2.92
Sublette	$-.71 \times 10^{-3}$	-.54
Teton	$.91 \times 10^{-2}$	5.09
Uinta	$-.69 \times 10^{-2}$	-5.36
Washakie	$.50 \times 10^{-2}$	4.51
Weston	$.71 \times 10^{-3}$	0.911

Table 2: Forecasts with ex ante data.

County	1982 (Ex ante data)	1983 (1981 Ex ante data)	1983 (1982 data)
Albany	4,615,820	5,619,201	5,498,028
Big Horn	1,822,829	1,927,048	1,956,759
Campbell	14,785,649	15,972,835	12,687,147
Carbon	9,860,032	8,897,670	9,296,978
Converse	4,053,941	4,403,015	4,660,345
Crook	1,464,611	1,492,704	1,534,477
Fremont	10,483,362	10,058,212	10,460,324
Goshen	2,292,836	1,912,267	1,932,258
Hot Springs	2,622,661	2,262,091	2,337,517
Johnson	1,877,568	1,780,313	1,911,693
Laramie	20,902,932	18,798,732	19,029,482
Lincoln	3,357,140	3,300,551	3,327,727
Natrona	59,870,832	53,548,589	55,467,066
Niobrara	847,037	724,618	696,972
Park	7,234,704	6,732,789	6,643,836
Platte	2,639,236	1,997,286	2,086,086
Sheridan	7,708,237	7,077,279	7,107,776
Sublette	1,598,538	1,566,258	1,597,579
Sweetwater	26,416,517	24,024,868	24,485,704
Teton	7,941,399	5,796,148	5,897,269
Uinta	8,736,323	13,778,225	13,796,148
Washakie	3,187,030	2,627,649	2,688,247
Weston	2,086,053	2,709,840	2,713,093
Total	$207,214,286	$197,008,188	$197,812,076
	(Aggregate error - 2.57 percent over)	(Aggregate error - 13.12 percent over)	(Aggregate error - 13.58 percent over)

Table 3: Forecasts with ex post data and comparisons to 1982 actual values.

County	Actual 1982 Collection	1982 Forecast	Error
Albany	5,359,601	5,009,266	6.54%
Big Horn	2,088,799	1,804,330	13.62%
Campbell	21,047,661	15,936,139	24.30%
Carbon	8,344,390	8,105,067	2.86%
Converse	4,642,669	4,154,489	10.52%
Crook	1,879,093	1,394,854	25.77%
Fremont	10,506,451	9,589,698	8.73%
Goshen	2,041,918	2,274,794	11.4%
Hot Springs	2,346,417	2,527,396	7.71%
Johnson	2,185,379	1,781,560	18.48%
Laramie	17,110,451	17,215,144	0.61%
Lincoln	3,686,913	3,171,452	13.98%
Natrona	55,317,507	58,375,101	5.53%
Niobrara	773,437	846,360	9.43%
Park	7,434,189	7,047,616	5.2%
Platte	1,712,903	2,350,174	37.2%
Sheridan	6,537,073	6,894,260	5.46%
Sublette	1,694,842	1,605,266	5.29%
Sweetwater	23,135,990	26,031,034	12.51%
Teton	6,280,122	6,188,550	1.46%
Uinta	11,917,280	10,482,314	12.04%
Washakie	2,985,865	2,918,266	2.26%
Weston	3,001,732	2,762,924	7.96%
Total	$202,030,682	$198,666,054	

Average error = 10.82 percent
Aggregate error = 1.67 percent under

General Fund Forecast - $104,774,929
Aggregate Error - 1.86 percent under

Table 4: Forecasts with ex post data and comparison to 1983 actual values.

County	Actual 1983 Collection	1983 Forecast	Error
Albany	5,326,474	4,920,398	7.62%
Big Horn	1,937,095	1,910,738	1.36%
Campbell	18,542,946	15,257,779	17.72%
Carbon	7,215,918	7,419,335	2.82%
Converse	3,870,909	4,025,260	3.99%
Crook	1,340,831	1,572,850	17.3%
Fremont	8,951,216	9,334,241	4.28%
Goshen	2,062,852	2,036,005	1.3%
Hot Springs	2,421,263	2,289,170	5.46%
Johnson	2,105,787	1,988,716	5.56%
Laramie	17,603,354	16,761,581	4.78%
Lincoln	3,204,927	3,252,063	1.47%
Natrona	40,641,489	50,143,527	23.38%
Niobrara	744,523	749,978	0.73%
Park	7,159,853	7,146,977	0.18%
Platte	1,527,434	1,811,562	18.6%
Sheridan	6,878,423	6,475,912	5.85%
Sublette	1,344,053	1,566,728	16.57%
Sweetwater	17,559,400	21,747,296	23.85%
Teton	6,485,633	6,562,617	1.19%
Uinta	11,996,194	10,173,532	15.19%
Washakie	2,565,849	2,821,559	9.97%
Weston	2,675,642	2,724,240	1.82%
Total	$174,162,065	$182,692,064	

Average Error - 8.3 percent
Aggregate Error - 4.9 percent over

General Fund Forecast - $96,709,231
Aggregate Error - 4.74 percent over

Table 5: General Fund sales tax collection forecasts, fiscal 1984 and fiscal 1985.

County	Forecast for 1984	Forecast for 1985
Albany	5,095,152	5,263,991
Big Horn	2,064,503	2,123,338
Campbell	16,246,694	16,943,587
Carbon	7,349,185	7,695,144
Converse	4,190,791	4,414,471
Crook	1,511,329	1,570,022
Fremont	9,493,330	9,707,409
Goshen	2,289,857	2,352,526
Hot Springs	2,293,753	2,350,644
Johnson	2,079,837	2,133,341
Laramie	17,320,477	17,914,124
Lincoln	3,257,922	3,374,643
Natrona	44,202,858	46,002,210
Niobrara	730,220	747,134
Park	7,426,015	7,617,814
Platte	1,756,968	1,829,403
Sheridan	6,732,160	6,961,462
Sublette	19,419,728	20,472,642
Teton	6,335,631	6,618,637
Uinta	8,639,023	10,613,104
Washakie	3,024,935	3,067,581
Weston	2,722,061	2,789,297
Total	$175,653,351	$184,077,788
	General Fund Forecast = $92,768,324	General Fund Forecast = $97,419,043

Economic Diversification Outlook

In Wyoming, concern for economic development is not new. During the doldrums of the 1960's, state delegations crisscrossed the country, serving elk steaks to business tycoons, promoting the advantages of locating in the Cowboy State. Back home, politicians argued that severance taxes would kill mineral development. There were no severance taxes until late in the decade. And not much mineral development either.

But change was in the wind. In 1973, war broke out in the Middle East. The Arabs embargoed their oil. America's vulnerability was exposed. The emperor had no clothes.

The nation was rocked. Gas lines and rationing plans, soaring prices and dire prophecies, OPEC and oil sheiks grabbed the headlines. Then came alternative strategies, a Department of Energy and Project Independence, convert to coal or sunlight or gasohol.

In Wyoming, these were epic times, like the coming of the railroad. The rush was on: oil drilling and coal mining, the Overthrust Belt and Powder River Basin, increased severance taxes, controlled growth and impact mitigation, record profits and production, mine land reclamation and slurry pipeline bills. Wyoming and minerals were joined at the umbilical cord. By 1980, 70 percent of the state's assessed valuation was based on minerals.

Then hard times again: Three-Mile Island and nuclear moratoriums, falling energy prices and rising stockpiles, recession and record unemployment. Going broke in Casper, turning out the lights in Jeffrey City.

And new talk concerning what to do about it all.

The Governor's Industrial Development Task Force was appointed. Recommendations were made. Highest priority should be placed on the retention and expansion of existing industries. Strengthen the mainstays--extractive minerals, agriculture, and tourism--by more economic development. As a matter of policy, the state should "work to diversify the State's economy as a means to expand our economy and to diminish the effect of cyclical and long-term employment fluctuations."

To achieve these ends, the state should undertake a series of steps designed to encourage investment, to ease regulatory encumbrances, and to streamline the permitting of major industrial facilities. The state should also identify and "target" businesses and industries "that are ideal candidates for recruitment."

But there are basic difficulties when one speaks about Wyoming controlling the course of its own economy.

"The diversification of Wyoming is going to be hard," says John Logan, head of the Department of Economic Planning and Development (DEPAD) Industrial Development Section. "There are some constraints that we have to be realistic about, that we operate under in this state." Among such constraints cited by experts are Wyoming's small labor force, the small population base, and a poor transportation network.

Another fact-of-life is the preponderant weight of the mining sector. In 1980, the mining sector was the largest contributor to Wyoming personal income, half-again as much as government, twice as much as services, five times more than manufacturing, and eight times more than agriculture. On a percentage basis, according to U.S. Department of Commerce figures, mining was 14 times more important as a contributor to personal income in Wyoming than in the nation as a whole.

But the minerals province is ruled by prices and market forces. Development proceeds when the economics are right, and not before. "How a state can stimulate such a market, I can't answer," says State Geologist Gary Glass. "I don't know that they can."

Glass notes that energy companies are always seeking ways to diversify, to adapt their products to new markets, even to the extent of using by-products and waste products. But nothing proceeds without economic feasibility. At present, says Glass, 511 gas wells in Wyoming are shut-in "just waiting for a market."

A state may be able to assist a small coal mine that produces for local consumption, says Glass, but the overall impact in terms of

employment would be slight. "The state maybe could support a low-cost mode of transportation, that's about all that could stimulate the coal market quickly." Such a mode might be a coal slurry pipeline--probably a political impossibility. And state subsidies for large projects without the economics to ensure their practicality would be great ideas that make no sense.

"It's not particularly a matter of lifestyle, taxes, or labor force," says DEPAD's Logan. "They are here because the commodity was here, and at the time, there was a great profit in it."

And the prospect that Wyoming's economy can be diversified at its base to the extent that several sectors will exist in a state of quiet equilibrium, where a disproportionate weight does not rest with the mining sector? No time soon, agree Logan and Glass.

Some discussion has focused on spawning a new generation of service firms by blending existing minerals activities with high technology (oil field robotics, for instance). Even presuming the availability of the necessary skilled labor force, however, such firms would still be tied to the fortunes of the basic industry. New jobs, perhaps, but little diversity would be added to the total economic base. And nothing that would insulate the total economy against reverses in the minerals industry.

While agriculture and mining are often viewed as adversaries, in terms of their dependence upon general market conditions over which the state exercises little influence, they are much the same.

Robert Carver, UW extension marketing economist, says that 80-85 percent of Wyoming's agricultural sales are derived from livestock and livestock products.

Diversification into other areas is severely restricted by climatic conditions and by the nature of the land resource.

Some attempts have been made to diversify by establishing secondary industries to process Wyoming agricultural products within the state. Most have ended in failure. Thus, most feeding and finishing is done in other states. One reason is that Wyoming will not support the feed grain industry necessary to support such secondary activities.

In addition, says Carver, "We really don't have many cattle in Wyoming from a macro aspect. There are as many cattle in Cherry County, Nebraska, as in the whole state of Wyoming." And while Wyoming ranks second in the production of stock lambs, these, too, are shipped to feedlots and packing plants out of state.

"The packing industry is very competitive," says Carver, "with closures all the time." In Wyoming, transportation costs alone could preclude a local plant from the intense competition. If a processing plant were located in eastern Wyoming, for example, livestock producers in western Wyoming still would probably find it most advantageous to ship their livestock to Salt Lake, and in northern Wyoming, to Billings. Thus, an eastern Wyoming plant may not be able to get a sufficient concentration of livestock to ensure success.

Is it possible that building a processing plant first might stimulate growth in production within a viable market area? No, says Carver. "The production base for many areas is very small. Experience has shown that growth in the production base doesn't automatically occur if a processing plant is built. In case after case, that just hasn't occurred. In most cases, we can't build a competitive advantage for them."

In supporting the development of secondary industries, says Carver, the problem is twofold. On the supply side, a consistent supply of a given quality must be maintained. On the demand side, even if a consistent supply could be provided, a competitive advantage must be maintained in a highly competitive atmosphere.

On the supply side, Wyoming lacks a feed grain base and total animal numbers. On the demand side, Wyoming is hampered by transportation costs over vast spaces and by homogeneous products for which unique selling

propositions are difficult to delineate. To most consumers, a side of beef is a side of beef, whether raised in Wyoming or Tennessee. There is little advantage in marketing a higher-priced product as "Wyoming beef." Carver says marketing studies have shown that few buyers--a large portion of whom are involved in the hotel, restaurant, and institutions trade--would be willing to pay more for a meat identified as being from Wyoming.

"Doing something about freight rates might help marginally," says Carver, but mostly Wyoming must contend with a variety of factors it cannot control.

"Diversification is not likely on a large-scale basis," says Carver. "The resource base just doesn't allow it."

Of the three mainstay industries cited by the Industrial Development Task Force, tourism may be the most readily susceptible to expansion through state initiatives.

In addition, according to Travel Commission spokesman Ernie Over, the state is exploring ways in which tourist travel might be increased, especially in the "shoulder" seasons, during both spring and fall. Diversification of the total economic base, by the creation of wholly new industries, also has been discussed, often in the context of high technology firms.

The state may entice certain firms by creating a more favorable business climate. But the competition can be intense. Many cities and states have well-financed efforts directed at attracting new industries.

In one case, cited in the Wyoming Heritage Foundation report on economic diversification, the city of Austin, Texas, was selected as a home site by Microelectronics and Computer Technology Corporation. Among various inducements, Austin reportedly offered MCC $20 million in property and equipment, $20 million in single-family mortgages, and $500,000 in relocation expenses. The University of Texas at Austin also reportedly pledged to spend upwards of $20 million to expand its computer science and engineering departments.

Neither, says Logan, does Wyoming want all types of business or industry. "We have to target the type of industries that will work. Within targeted areas, I think we are and can be competitive."

Logan says the kind of new industries Wyoming may be most apt to attract are small-to-medium size manufacturing firms that can utilize the skills possessed by Wyoming's relatively small labor force.

Knowing the question, it has been said, is to know half. The question is not whether the state should act to diversify its economy; rather, the question is what courses of action might be reasonably pursued, given the constraints.

In this regard, state government might reasonably perform five overlapping functions.

First, the lead agency in matters of economic development could serve as an information clearing house for industries interested in Wyoming. The information provided might include labor force, county profile, population, transporation, and local credit market data.

Second, the lead agency might provide strategic market analyses, including investigations of international markets for Wyoming products, of barriers to the penetration of new markets, and of possible new products not currently produced in the state.

Third, the lead agency could serve as an intermediary between industries wishing to locate in the state on the one hand, and local governments and organizations on the other.

Fourth, the lead agency could help promote Wyoming products in broader markets, where appropriate, and help with promotions to attract new industries. The focus would be on highly targeted efforts among firms with a relatively high probability of eventually locating in the state.

And finally, the lead agency could monitor laws and legislation affecting the business community. Appropriate changes to encourage business expansion could then be explored.

S.T. Mast, Shelby Gerking, and G. Fred Doll, IPR

# #

COUNTY PROFILES

Johnson County Profile

PHYSICAL CHARACTERISTICS AND CLIMATE

Johnson County is located in northcentral Wyoming. It is bordered by Sheridan County to the north, by Natrona and Converse counties to the south, by Campbell County to the east, and by Big Horn and Washakie counties to the west. Buffalo, the county seat, is situated in the Clear Creek Valley 36 miles south of Sheridan. Kaycee, the second largest town, is located in southcentral Johnson County 40 miles north of Casper.

Johnson County is comprised of 2,674,560 total acres, or 4,179 square miles. Of the total acreage, 836,593 acres are federally owned, 247,616 are owned by state and local governments, and 1,587,791 are privately owned.

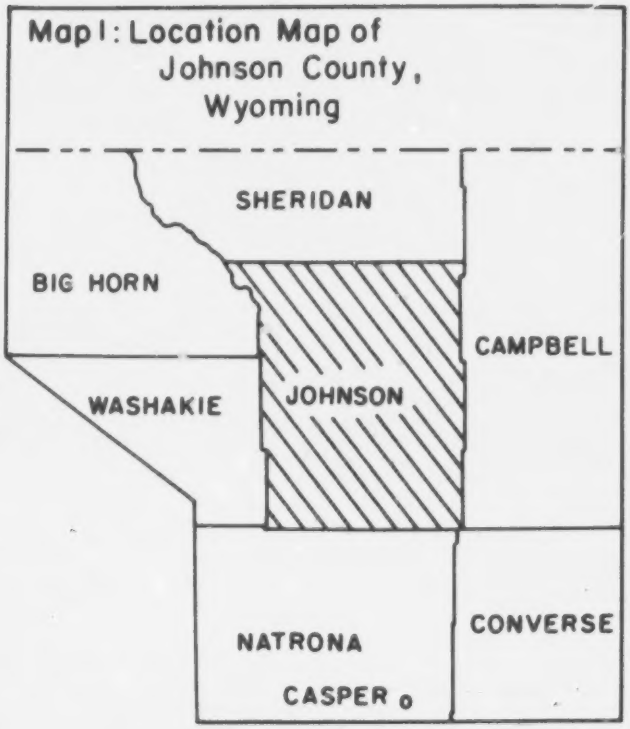
Johnson County includes both mountains and plains. The Bighorn Mountains rise from basal elevations of 5,000 feet to 13,175 feet at the summit of Cloud Peak. Much of eastern Johnson County is located in the vast Powder River Basin. Both Kaycee and Buffalo are located near the line of contact where the Big Horn Mountains rise from the Powder River Basin.

The Powder River and its tributaries form the major drainage system in the county. Most streams in the area originate in the Big Horn Mountains.

The mountains strongly influence climatic conditions. Average annual precipitation is 15.7 inches, with greater averages in the mountain areas. In the dry southern reaches of the county, less than 11 inches of precipitation per year can be anticipated. Average annual snowfall for the county is 44 inches. Average annual temperature is 36.4°F, with substantial seasonal variations between the mountains and the plains. Average annual date of the last freeze is May 26, while annual average date of the first freeze is September 12. The prevailing winds are from the northwest, with an annual average velocity of 7.8 mph at Buffalo.

HISTORY

Evidence of prehistoric human habitation in Johnson County exists in the southern Big Horn Mountains. A site in the Middle Fork area consists of more than 32 separate piles of stone, believed to be guideposts to summer hunting grounds. The area contains signs of human activity more than 5,000 years ago and contains one of the highest archaeological site-densities in the state. Rock quarries, camps, rock shelters, and some of the best prehistoric rock art sites in the state are located here.



Map I: Location Map of Johnson County, Wyoming

Before the coming of white men, the Powder River Basin had been the home hunting ground of the Crow Indians. In 1807-1808, Manuel Lisa established trade with the Crow in the region. Members of the Overland Astorians, an expedition funded by John Jacob Astor, passed through the area enroute to the Columbia River in 1811. Father Jean Pierre DeSmet, a Jesuit missionary, is credited with the discovery of Lake DeSmet north of Buffalo in 1851.

With the discovery of gold in Montana in 1862, the Bozeman Trail was opened through the county. Forts were built along the trail to protect the miners. Since the land north of the Platte River had been granted by treaty, the intrusion of the trail and its accompanying forts was a bitter blow to the Indians.

In 1865, Fort Connor was constructed at a site along the Powder River 27 miles east of Kaycee. Fort Phil Kearney was established on Piney Creek in 1866. Other forts followed.

Hostilities between Indians and whites intensified. In 1867, a small band of soldiers and civilians beat back repeated attacks in the famous "Wagon Box Fight." But white civilization pushed ahead. The last major campaign was waged in 1876, culminating when white troopers destroyed the winter camp of Chief Dull Knife west of Kaycee.

Once the Indians were suppressed, the way was open for settlement. Large cattle ranches were established. In 1881, Johnson County was organized, composed of what today is Johnson, Sheridan, Hot Springs, Washakie, and Big Horn counties. Much money in the early years was derived from taxes on southern Wyoming cattle

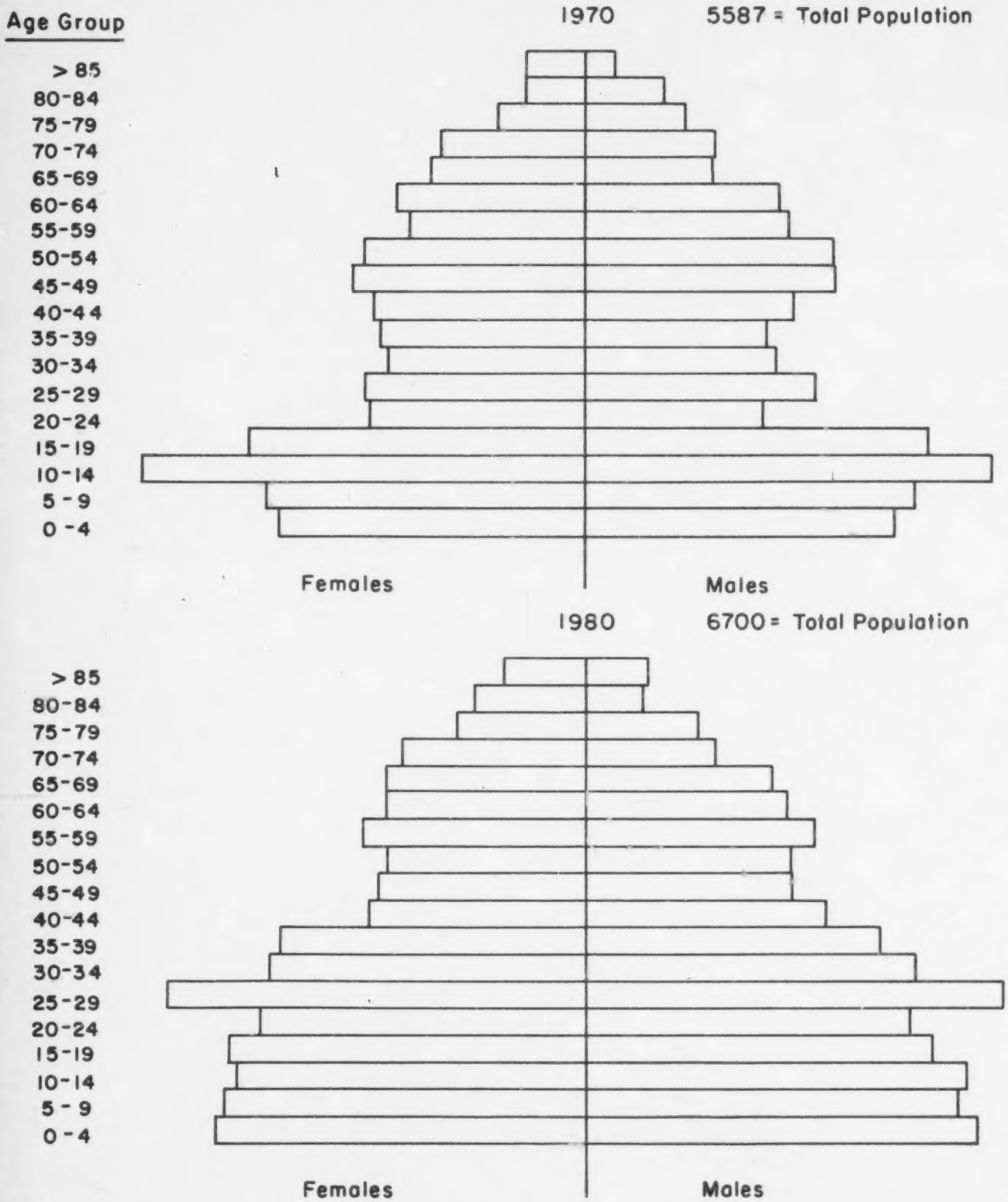
Table 6: Johnson County Profile

Calendar Years		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
1.	Births	84.	80.	84.	90.	100.	79.	125.	110.	126.	123.	127.	132.[1]
2.	Deaths	78.	69.	62.	64.	69.	72.	66.	75.	56.	70.	65.	65.[1]
3.	Divorces	36.	21.	26.	27.	38.	35.	28.	33.	40.	51.	46.	33.[1]
4.	Marriages	76.	77.	95.	74.	90.	95.	112.	94.	94.	116.	119.	109.[1]
5.	Population[2]	5700.	5400.	5400.	5400.	5700.	6000.	6000.	6300.	6400.	6700.	6900.	6755.
6.	Oil Production (HBBL)	42068.	37840.	34614.	34663.	35818.	37210.	35921.	33839.	32196.	31078.	26671.	24005.
7.	Valuation on Oil Production (H$)	134239.	120583.	128635.	198154.	259315.	290734.	283559.	316347.	396287.	681637.	898134.	735743.
8.	Natural Gas Production (HMCF)	19905.	16387.	15918.	13476.	12267.	13560.	13125.	14742.	10389.	7147.	12729.	8371.
9.	Valuation on Natural Gas Production (H$)	2506.	2041.	1740.	2194.	2152.	1513.	4429.	4614.	7713.	15879.	27822.	20282.
10.	Bentonite Production (HT)	2136.	1662.	2353.	2390.	1776.	2390.	2166.	2333.	3418.	2887.	2770.	1751.
11.	Valuation on Bentonite Production (H$)	2991.	2327.	2899.	3024.	3299.	4057.	3647.	5172.	9949.	7616.	8374.	5836.
Fiscal Years		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
12.	AFDC Recipients	INA	207.	208.	247.	184.	175.	191.	141.	177.	253.	251.	174.
13.	Food Stamp Recipients	79.	104.	98.	110.	103.	72.	85.	73.	55.	97.	124.	111.
14.	AFDC Payments ($)	INA	31189.	34132.	41325.	29279.	29633.	39747.	28631.	42792.	61628.	65433.	46459.
Calendar Quarters		1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
15.	Hotel, Motel, & Camp Sales & Use Tax Collections ($)	5750.	12437.	32444.	13113.	8557.	11341.	33499.	14422.	6234.	8373.	33271.	14060.
16.	Total Sales & Use Tax Collections ($)	414054.	493236.	526528.	651812.	581041.	524614.	608294.	582188.	554578.	472509.	593933.	557074.
17.	Liquor Sales ($)	84473.	108489.	147433.	159027.	96991.	123758.	140063.	148743.	85505.	108888.	125243.	131926.[3]
18.	Gasoline Gallonage (GL)	1208501.	1616765.	2290004.	1328937.	918726.	1594615.	2221717.	1393604.	1168923.	1451702.	1566175.	1300000.[3]
19.	Civilian Labor Force	3458.	4001.	4162.	3875.	3399.	3844.	3721.	3608.	3619.	4307.	4083.	4462.
20.	Employment	3236.	3872.	4057.	3733.	3143.	3645.	3531.	3375.	3181.	3935.	3880.	4207.
21.	Unemployment	222.	129.	105.	142.	256.	199.	191.	232.	438.	372.	203.	255.
22.	Unemployment Rate	6.4	3.2	2.5	3.7	7.5	5.2	5.1	6.4	12.1	8.6	5.0	5.7

[1] Provisional data from the Wyoming Department of Public Health, Division of Vital Statistics.
[2] 1971 through 1979 and 1981 are estimates made by the U.S. Bureau of the Census, not an actual count as in 1980. 1982 is an estimate made by the Department of Administration and Fiscal Control.
[3] Estimate based on trend and actual data for October and November.

Sources:
Series 1-4: Wyoming Department of Public Health, Division of Vital Statistics. "Vital Statistics." Published yearly.
Series 5: Regional Economics Information System, Bureau of Economic Analysis. Population data included in table of "Personal Income by Major Sources."
Series 6-11: Annual Report: Department of Revenue and Taxation, Ad Valorem Tax Division. Fiscal year report.
Series 12-14: Wyoming Division of Public Assistance and Social Services. Management Information and Statistical Report. Published biannually.
Series 15: Sales and Use Tax Summary by County. Hotel, Motel, and Camp Sales Tax Collections. Wyoming Department of Revenue, Sales and Use Tax Division. Published monthly.
Series 16: Net Collections by Business Class by County. Wyoming Department of Revenue, Sales and Use Tax Division. Published monthly.
Series 17: Sales by County-City. Wyoming State Liquor Commission. Published monthly.
Series 18: The Gasoline Gallonage Report. Petroleum Association of Wyoming. Gasoline consumption by county. Published monthly.
Series 19-22: Employment Security Commission of Wyoming. Labor Force Trends. Published quarterly.

Figure 1. Johnson County; Age by Sex in 5-year Age Groups, 1970, 1980.



companies who grazed cattle in Johnson County.

During the severe winter of 1886-1887, many ranches went broke. Unemployed cowboys began establishing small ranches by rounding up mavericks. Homesteaders and sheepmen also began arriving in the region. Friction between the small operators and the large ranches developed over who should control grazing rights, culminating in the Johnson County War of 1892. The whole county seethed with hatred and unrest. The Chicago, Burlington & Quincy Railroad had planned to lay its tracks through Buffalo. But the railroad was rerouted north straight on to Sheridan since the company didn't consider Johnson County a safe place for property.

The Johnson County War marked the end of the cattle baron era, but not the end of livestock raising. Today, livestock raising remains an important facet of the local economy, with the towns of Buffalo and Kaycee serving as important ranch supply centers.

NATURAL RESOURCES

Minerals

The first natural gas discovery in Johnson County occurred in the Billy Creek field, drilled in 1923. Before it was depleted, the field produced 6.5 billion cubic feet of gas.

Activity in the Sussex field, discovered in 1948, produced both oil ang gas. Subsequently, the Meadow Creek Complex and the Sussex West-Dugout fields were discovered during the early 1950's.

Throughout the later portions of the 1950's, oil and gas production declined. It wasn't until 1963 that production substantially increased, due to a large number of new discoveries. The Barber Creek West, Cellars Ranch, Hub, Reno, and Reno East fields all were discovered during the 1960's. Annual production in the county peaked in 1966, at 8.5 million barrels of oil and 3.5 billion cubic feet of gas.

Oil production remained fairly constant during the 1970's at about 3 million to 3.5 million barrels per year. When exploration activity reached a five-year high late in the decade, some production increase was projected. However, such was not the case. The 1981 production figures showed a 500,000 barrel decrease, while 1982 production decreased by about 267,000 barrels. In addition, the Department of Economic Planning and Development (DEPAD) forecasts no new production increases through 1987. Annual production is expected to remain steady at about 2 million barrels through 1985, before dropping to 1.8 million barrels per year by 1987. Valuation on oil production peaked in 1981 at $89,813,400, before dropping to $73,574,300 in 1982. Valuation on gas production also peaked in 1981 at $2,782,200, before dropping to $2,028,200 in 1982.

Bentonite mining began near Kaycee in the late 1940's, but large-scale development did not begin until 1964, when a large processing plant was built in Casper by the Kaycee Bentonite Corporation.

Johnson County currently ranks third among all Wyoming counties in the production of bentonite. Although bentonite production has decreased since 1979, DEPAD predicts that production could rebound through 1985.

Even though uranium deposits located in southeastern Johnson County were among the first to be commercially mined in the nation, total production remained relatively insignificant. Active mining between 1953 and 1964 produced only 2,408 tons of ore. Virtually all the ore was extracted from small surface mines in the Pumpkin Buttes Mining District. At present, no uranium operations are active in Johnson County, and the future is uncertain at best.

Although coal has been mined in Johnson County since 1888, no significant production has ever resulted. Annual production peaked in 1922 at only 16,221 tons.

After World War II, coal production declined rapidly, culminating in the closure of Johnson County's last coal mine in 1957. The county's culminative coal production during 70 years of mining was only 462,041 tons.

There is, however, some continued interest in Johnson County's coal resources. Texaco owns the rights to extensive coal reserves and to water rights at Lake DeSmet. The potential exists for coal gasification or electrical generation projects, but there are no current

plans for development.

Water

The Powder River and its tributaries form the major drainage system in Johnson County. The Powder River consists of three major branches: the North, Middle, and South forks (which join near Kaycee to become the Powder River). Other major tributaries include Crazy Woman Creek, Clear Creek, Rock Creek, French Creek, and Piney Creek. Municipal water for both Buffalo and Kaycee is derived from surfacewater.

Water appropriations from the Powder River are controlled by the Yellowstone River Compact. A number of reservoir sites in Johnson County have been proposed to make fuller use of Wyoming's share of the water.

Groundwater is available from several underground aquifers. Paleozoic formations with the best groundwater potential are the Madison and Tensleep formations. Favorable Mesozoic aquifers include the Cloverly, Mesaverde, Fox Hills, and Lance formations. Cenozoic formations are the most common sources of groundwater for domestic and livestock uses. Such water is derived from the Fort Union, Wasatch, Arikaree, and White River formations, as well as from alluvium deposits.

Timber

The timber industry in Johnson County is small. The 1979 production total was only 100,000 board feet. The major species cut were lodgepole pine and engelmann spruce.

THE PEOPLE

Population growth in Johnson County has been slow for the past 50 years. In 1930, county population was 4,816, increasing to only 6,700 by 1980. While the percentage increases

Table 7: Personal Income by Major Sources (Thousands of Dollars)*

Source	Wyoming 1981		Johnson County 1981		Johnson County 1971	
	$	% of Total	$	% of Total	$	% of Total
Farm	42703	.94	551	1.42	4681	31.49
Ag. Serv., For., Fish, and Other	14720	.32	D≠	----	D≠	----
Mining	1167155	25.73	10561	27.14	828	5.57
Construction	524627	11.56	3093	7.95	1129	7.60
Manufacturing	225847	4.98	1541	3.96	568	3.82
Transportation & Public Utilities	471293	10.39	1819	4.67	D≠	----
Wholesale Trade	251435	5.54	D≠	----	D≠	----
Retail Trade	412226	9.09	4657	11.97	2176	14.64
Finance, Insurance, & Real Estate	143506	3.16	2207	5.67	552	3.71
Services	505006	11.13	5854	15.04	1315	8.85
Government	778058	17.15	7313	18.79	2616	17.60
Total	4536576		38916		14864	

*REIS data
≠Not shown to avoid disclosure of confidential information; data are included in totals.

in Buffalo were large during some periods (the population increased by 16.75 percent between 1960-1970, for example), the figures are not as dramatic when the small base numbers are considered.

Between 1970 and 1980, the median age dropped from 31.6 to 30.8. The greatest increase occurred in the 25-29 year old cohort, with the largest decrease during the period occurring in the 10-14 year old group.

Rapid growth was once expected in Johnson County, and in Buffalo in particular, as a result of coal development in the region. Some studies conducted during the early 1970's predicted that the population of Buffalo might reach 18,000 by 1985. Obviously, no growth of this magnitude has occurred. Nor does growth of this order seem likely anytime soon. According to population projections published by the Department of Administration and Fiscal Control, the population of Johnson County is expected to grow from 6,696 in 1983 to 7,128 by 1990.

THE ECONOMY

As in many areas of the state, the weight of personal income data shifted away from agriculture and toward the mining sector during the 1970's. In 1971, the farm sector ranked first as a contributor to county personal income, accounting for 31.49 percent of the total. Government was second (17.60 percent) and retail trade was third (14.64 percent).

By 1981, however, mining was ranked first, accounting for 27.14 percent of total personal income, followed by government (18.79 percent) and services (15.04 percent). By 1981, the farm sector contributed only 1.42 percent of total personal income.

In terms of total employment, government provided 28.42 percent of the total in 1971, followed by retail trade (19.48 percent) and services (14.96 percent). By 1981, services contributed the most employment (20.34 percent), followed by government (18.80 percent) and mining (18.01 percent).

In 1982, major employers in the county included Stafford Well Service, Texaco, Reeves Inc. (construction), and Ross Construction.

Many historic and scenic sites are located in Johnson County. Thus, tourism is an important part of the overall economic mix. In 1981, according to U.S. Travel Data Center figures, Johnson County received $6,091,000 in travel-related spending. Wages and salaries paid to employees directly serving travelers amounted to $1,098,000, generating 165 jobs. State tax revenue generated by travel spending was $177,000, while travel-generated local tax revenue was $87,000.

Johnson County also ranks second among all Wyoming counties in the production of stock sheep. In 1983, 131,000 head of stock sheep were on county farms and ranches.

OUTLOOK

The outlook for Johnson County is for only modest expansion during the next decade. There are, however, the seeds of substantial expansion, depending upon worldwide energy price conditions. Johnson County has both coal and uranium resources, and changing market conditions could make development desirable. At present, however, no such development is forecast for the near-term.

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# #

Washakie County Profile

PHYSICAL CHARACTERISTICS AND CLIMATE

Washakie County is located in the Big Horn Basin of northern Wyoming. It is bordered by Big Horn County to the north, by Fremont and Natrona counties to the south, by Johnson County to the east, and by Park and Hot Springs counties to the west.

Washakie County is comprised of 1,447,680 acres, or 2,262 square miles, ranking the county 19th in size among all Wyoming counties. Of the total land area, 963,096 acres are federally owned, 143,566 acres are owned by state and local governments, and 341,018 acres are privately owned.

Worland, the largest community and county seat, is located in the northwestern portion of the county. Ten Sleep, the second largest town, is located 26 miles east of Worland.

The Big Horn Basin is a deep geological basin almost entirely surrounded by mountains. The Absaroka Mountains to the northwest, the Bear Tooth Mountains of Montana, the Owl Creek Mountains to the southeast, the Bridger Mountains to the southeast, the Big Horn Mountains to the east, and the Pryor Mountains to the north ring the area.

From the western slope of the Big Horn Mountains, Washakie County flows into plains, badlands, and rich agricultural valleys. Elevations range between 4,000 feet to 4,500 feet throughout most of the county.

Water flows into the county from the Wind River Mountains, the Owl Creek Mountains, and the Big Horn Mountains. The Big Horn River flows northward through the county, while eastern portions of the county are drained by Nowood Creek and Ten Sleep Creek.

Average annual precipitation for the county overall is 7.8 inches, with annual average snowfall of 21.1 inches. The annual average temperature is 44.6 F°. The average date of the first freeze is September 23, while the average annual date of the last freeze is May 13. Due to the protective mountain ranges, winds in the area often are lighter than in many areas of the state.

HISTORY

The most significant prehistoric site in Washakie County thus far discovered is the Colby Mammoth kill site near Worland. Three projectile points, grinding tools, and possible bone tools used at the kill site were located. The site is representative of a Clovis Complex, inhabited approximately 11,000 years ago. One of the few mammoth kill sites in the state, the Colby site indicates the presence of a mammoth herd in the Big Horn River Valley that was prey for human hunters.

The first white man in the area was probably John Colter, arriving in 1807. Seeking a low pass over the Big Horn Mountains, Colter split off from the main body of the Lewis and Clark expedition.

Cattle ranching was the first economic activity of major importance to the county. In 1882, the Big Horn Cattle Company was established on Ten Sleep Creek. Within a few decades, however, sheep became as important as cattle. Today, livestock raising is still an important industry.

In 1903, the Hanover Canal was built and large-scale irrigation projects soon followed. The irrigation made possible the production of sugar beets, a crop still vitally important to the local economy. The Holly Sugar factory, which began operations in 1925, employed 250 persons in 1982.

The town of Worland was founded in 1903 by C.R. "Dad" Worland, a sheepman and rancher, on the west bank of the Big Horn River. At first, the "town" consisted of only a dug-out in the

Table 8: Washakie County Profile

Calendar Years	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
1. Births	145.	123.	102.	133.	140.	173.	162.	175.	219.	218.	209.	196.[1]
2. Deaths	59.	49.	56.	76.	79.	78.	72.	63.	72.	67.	75.	67.[1]
3. Divorces	19.	33.	47.	57.	52.	68.	70.	52.	55.	65.	66.	62.[1]
4. Marriages	113.	101.	93.	103.	119.	112.	115.	106.	111.	108.	133.	122.[1]
5. Population[2]	7500.	7900.	7800.	7800.	8100.	8400.	8800.	8800.	9100.	9496.	9900.	9694.
6. Oil Production (HBBL)	18536.	19708.	19565.	18477.	17154.	17245.	18644.	19276.	16470.	22430.	23445.	20579.
7. Valuation on Oil Production (H$)	55796.	58786.	67925.	103103.	102798.	117410.	138376.	162578.	188719.	530376.	741935.	583739.
8. Natural Gas Production (HMCF)	138337.	131742.	115680.	103802.	91045.	79028.	68075.	62271.	61521.	40537.	34457.	25943.
9. Valuation on Natural Gas Production (H$)	17630.	16519.	15883.	15692.	12956.	13754.	14207.	13588.	14726.	22744.	22281.	18098.
10. Bentonite Production	INA	INA	7.	573.	1785.	2622.	1804.	2863.	3694.	2243.	2514.	805.
11. Valuation on Bentonite Production (H$)	INA	INA	8.	688.	2642.	4484.	3518.	6356.	9695.	4598.	7415.	1972.
Fiscal Years	**1971**	**1972**	**1973**	**1974**	**1975**	**1976**	**1977**	**1978**	**1979**	**1980**	**1981**	**1982**
12. AFDC Recipients	INA	435.	502.	523.	498.	448.	505.	545.	543.	608.	592.	581.
13. Food Stamp Recipients	249.	301.	326.	280.	227.	223.	246.	256.	244.	346.	367.	352.
14. AFDC Payments ($)	INA	53840.	75360.	80942.	69340.	67499.	82734.	99741.	118638.	149069.	160727.	170205.
Calendar Quarters	**1/81**	**2/81**	**3/81**	**4/81**	**1/82**	**2/82**	**3/82**	**4/82**	**1/83**	**2/83**	**3/83**	**4/83**
15. Hotel, Motel, & Camp Sales & Use Tax Collections ($)	17294.	18642.	17604.	14786.	13814.	14214.	18196.	14087.	10886.	13746.	17792.	14167.
16. Total Sales & Use Tax Collections ($)	809785.	994801.	720068.	735201.	904151.	782419.	761391.	722979.	650656.	613124.	721584.	689301.
17. Liquor Sales ($)	124954.	127140.	139022.	183708.	135740.	137056.	128262.	170601.	108349.	131670.	116312.	150723.[3]
18. Gasoline Gallonage (GL)	1429732.	1735865.	2045138.	1816572.	1355700.	1701196.	2047526.	1717497.	1314520.	1577019.	1396057.	1500000.
19. Civilian Labor Force	4881.	5156.	5330.	5126.	4939.	5077.	5136.	5010.	5033.	5322.	5270.	5463.
20. Employment	4688.	5013.	5192.	5001.	4697.	4823.	4831.	4724.	4596.	4872.	4962.	5157.
21. Unemployment	193.	142.	138.	125.	242.	254.	305.	286.	438.	450.	308.	307.
22. Unemployment Rate	4.0	2.8	2.6	2.4	4.9	5.0	5.9	5.7	8.7	8.5	5.8	5.6

[1] Provisional data from the Wyoming Department of Public Health, Division of Vital Statistics.
[2] 1971 through 1979 and 1981 are estimates made by the U.S. Bureau of the Census, not an actual count as in 1980. 1982 is an estimate made by the Department of Administration and Fiscal Control.
[3] Estimate based on trend and actual data for October and November.

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Series 17: Sales by County-City. Wyoming State Liquor Commission. Published monthly.
Series 18: The Gasoline Gallonage Report. Petroleum Association of Wyoming. Gasoline consumption by county. Published monthly.
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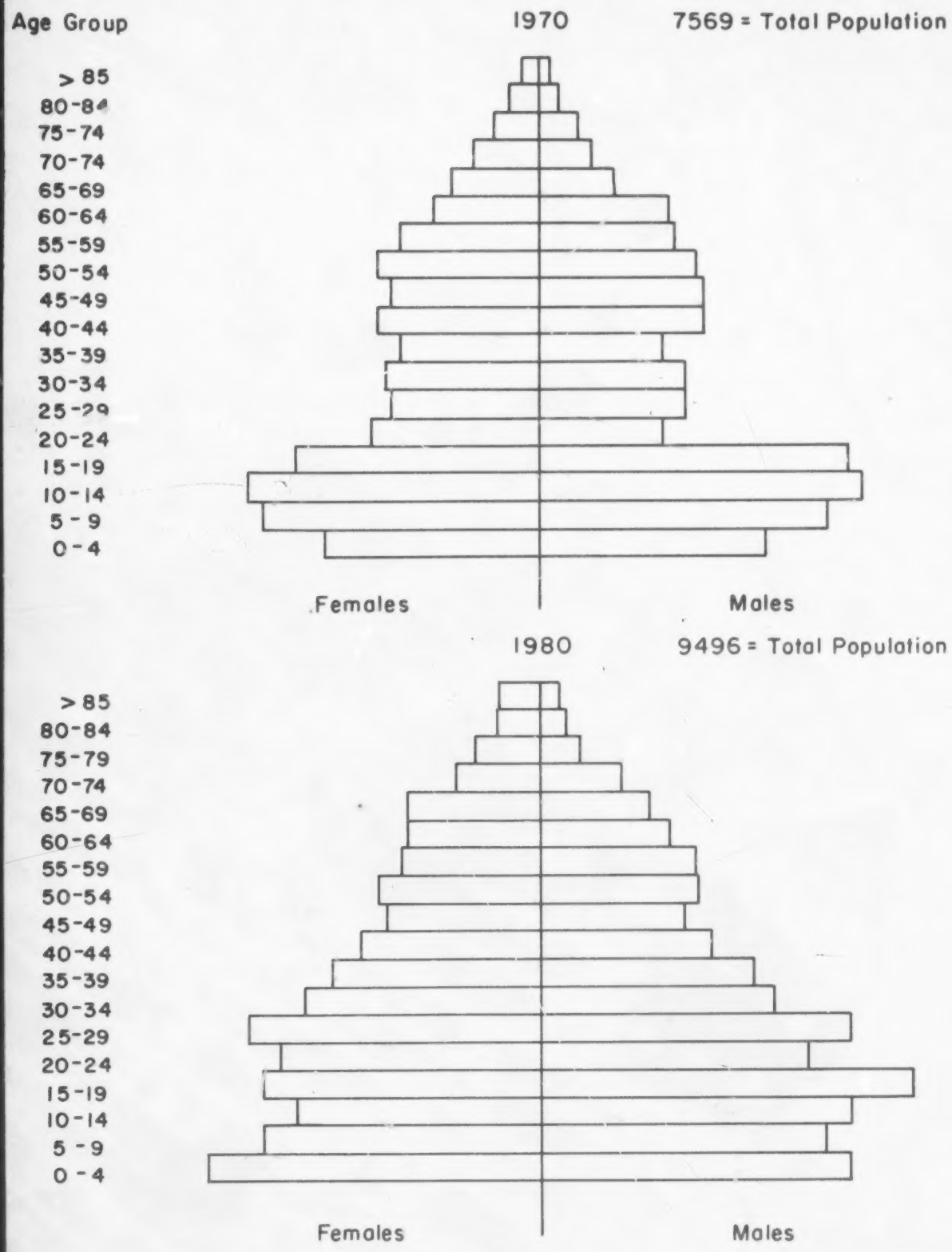
Figure 2. Washakie County; Age by Sex in 5-year Age Groups, 1970, 1980.



stream bank of Fifteenmile Creek that was used as a saloon and road ranch. By 1905, however, the town included both stores and a newspaper.

During the winter of 1905-1906, word was received by the townspeople that the Chicago Burlington & Quincy Railroad planned to lay tracks through the Big Horn Valley--but on the east side of the Big Horn River. While the river was still frozen, therefore, the intrepid populace moved buildings and belongings across the ice to a new townsite on the east side of the river!

In 1909, the last significant conflict of the sheep and cattle wars was fought in Washakie County. Three sheepmen died in what has become known as the "Ten Sleep Raid."

In 1911, Governor Joseph E. Carey signed a bill creating Washakie County, named for the renowned Shoshoni chief. It is the only county in Wyoming named for an Indian.

In 1917, oil was discovered in the Hidden Dome field. In 1945, Pure Oil Company began drilling in the county, and in 1949, Pure Oil built a refinery. Also during the 1940s, Texas Gulf Sulphur built a plant to extract hydrogen sulfide associated with natural gas deposits for refining into pure sulphur. It was the first such plant in the world.

NATURAL RESOURCES

Minerals

A number of minerals are found in Washakie County, but only a few have been located in sufficient concentrations to warrant commercial mining.

The county began producing bentonite in 1973. Production gradually rose through the 1970's, reaching 369,399 tons in 1979. Since that time, production has declined, hitting only 80,500 tons in 1982. Valuation on production also has declined, from $969,500 in 1979 to $197,200 in 1982. The sole producer of bentonite during 1981-1982 was the Black Hills Bentonite Company, a division of Kaycee Bentonite Corporation. The decline in production followed declines in the domestic steel industry and in oil drilling activity.

The first oil and gas field in Washakie County was discovered in 1918. Oil production dropped from 2,344,500 barrels in 1981 to 2,057,900 barrels in 1982, while the valuation on production dropped from $74,193,500 to $58,373,900. During the same period, natural gas production dropped from 3,445,700 mcf to 2,594,300 mcf, while the valuation on production dropped from $2,228,100 to $1,809,800.

In 1981, the largest producing oil field was the Cottonwood Creek field, with a combined production total of 588,703 barrels, while the largest producing gas field was the Worland field, with production of 3,415,976 mcf.

Two gas processing plants also operate in the county. Energy West's Temagami plant, located 16 miles north of Worland, has a capacity of 2,500 mcf per day. Union Oil's Worland plant, located 7 miles north of Worland, has a capacity of 50,000 mcf per day.

With major increases in mineral valuations during the 1970's, the percentage of total assessed valuation made up by minerals production rose from 35 percent in 1971 to 62 percent in 1982, a trend common in many parts of the state. Total minerals valuation in 1982 was $60,407,391.

Water

Ample water supplies are the lifeblood of Washakie County's extensively irrigated farmlands. The primary source of water is the Big Horn River and its tributaries. The Boysen Reservoir, located 60 miles south of Worland in Fremont County, regulates the flow of the river.

Water from the river is diverted or pumped into several water systems that serve farms throughout the Worland Valley. The major system is the Big Horn Canal, feeding 24,000 irrigatable acres. Other major irrigation systems include the Upper Hanover, the Lower Hanover, and the Hanover Highline water districts.

Efforts currently are underway to develop additional water for the county. The purpose of the Gooseberry Irrigation Project is to increase the amount of acreage irrigated in the Gooseberry Creek watershed. Agreements to purchase water from the Lower Sunshine Reservoir in Park County, from the Greybull Valley Irrigation District, and from flood waters associated with the Wood River are being pursued.

A second project, the Westside Irrigation Project, is intended to make water available for irrigating an additional 9,600 acres of land in Washakie and Big Horn counties. The lands proposed for development are located west of the Big Horn Canal between the towns of Worland and Manderson.

Groundwater is an important source of municipal water. Worland relies on two artesian wells located 20 miles northeast of the town. Together, the wells have the capacity to produce 11 million gallons of water per day. At present, the highest daily summer use is 5.5 million gallons per day.

Timber

Small amounts of timber are harvested in Washakie County. In 1983, 12,464 acres of commercial forested acres were located on private land. The major species include lodgepole pine, engelmann spruce, and alpine fir.

THE PEOPLE

The population of Washakie County has increased slowly over the past 70 years, with total population progressively becoming more concentrated in the town of Worland. In 1930, 35.56 percent of the total population resided in Worland. By 1980, 67.30 percent lived in Worland. Even though total population in the county and the population of Worland declined between 1960 and 1970, the percentage of total population living in Worland increased from 65.36 percent to 66.79 percent. Total population in the county during the period declined from 8,883 in 1960 to 7,569 in 1970.

The population of Worland gained with each census from 1910 to 1960, before falling in 1970. The population decline during the 1960's

was characteristic of declines throughout the Big Horn Basin and can be attributed to decreases in agricultural and oil industry employment.

By the early 1970's, however, stabilization in agricultural employment, renewed energy exploration, and the emergence of gypsum and bentonite industries contributed to renewed growth. Total county population increased from 7,569 in 1970 to 9,496 in 1980, while the population of Worland increased from 5,055 in 1970 to 6,391 in 1980.

The greatest shift in population age characteristics between 1970 and 1980 occurred in the 20-39 year-old cohort. In 1970, persons 20-39 years of age made up 21.94 percent of total county population; by 1980, the same group made up 30.70 percent of the total population. The average age for county residents in 1970 was 27.7, increasing slightly to 27.9 by 1980.

Modest population growth appears likely for the county throughout the 1980's. According to Department of Administration and Fiscal Control (DAFC) population projections, the population of Washakie County is expected to increase from 9,826 in 1983 to 11,485 in 1990.

THE ECONOMY

Total employment in Washakie County is concentrated in the government, services, and retail trade sectors, a pattern that changed little during the 1970's. In 1971, 28.16 percent of total employment was related to government, 15.39 percent was related to retail trade, and 13.09 percent was related to services. In 1981, 18.36 percent was related to government, while 15.37 percent was related to services and 12.92 percent to retail trade.

Farm employment as a percentage of total employment dropped slightly, from 11.08 percent in 1971 to 8.61 percent in 1981, while mining employment increased from 3.34 percent to 9.63 percent.

However, a dramatic shift occurred in the rankings of contributors to personal income. In 1971, government contributed 22.16 percent of total personal income, followed by farming (17.20 percent) and retail trade (12.26 percent). By 1981, the mining sector had become the major contributor to total personal income (17.98 percent), followed by government (16.05 percent) and manufacturing (13.28 percent). Farming, second as a contributor to personal income in 1971, contributed only 3.91 percent to the total by 1981.

The figures indicate that while mining and manufacturing do not rank among the top three in numbers of persons employed, because of the relatively high wages paid, they are nevertheless primary contributors to county personal income.

Principal manufacturing employers in Washakie County include Holly Sugar Corporation, Admiral Beverage Corporation, and Crown Cork & Seal. Holly Sugar purchases about $12 million worth of sugar beets from local growers each year and employs about 250 persons, according to the Governor's Resource Tour. Admiral Beverage, a soft drink bottling and canning plant serving an eight-state area, employs 130 persons. Crown Cork & Seal, a can manufacturing plant, employs another 113 persons.

In the mining sector, Black Hills Bentonite Company, Union Oil, Halliburton (oil field service), Dow Chemical (oil field service), and the two gas processing plants are the major employers.

Of an estimated 290 other businesses

Table 9: Personal Income by Major Sources (Thousands of Dollars)*

Source	Wyoming 1981		Washakie County 1981		Washakie County 1971	
	$	% of Total	$	% of Total	$	% of Total
Farm	42703	.94	2935	3.91	3885	17.20
Ag. Serv., For., Fish, and Other	14720	.32	D≠	----	373	1.65
Mining	1167155	25.73	13481	17.98	686	3.04
Construction	524627	11.56	5549	7.40	1446	6.40
Manufacturing	225847	4.98	9956	13.28	2472	10.95
Transportation & Public Utilities	471293	10.39	7112	9.49	2018	8.94
Wholesale Trade	251435	5.54	D≠	----	753	3.33
Retail Trade	412226	9.09	6825	9.10	2770	12.26
Finance, Insurance, & Real Estate	143506	3.16	2480	3.31	636	2.82
Services	505006	11.13	9859	13.15	2542	11.26
Government	778058	17.15	12036	16.05	5004	22.16
Total	4536576		74976		22585	

*REIS data
≠Not shown to avoid disclosure of confidential information; data are included in totals.

located in the Worland area, 137 are retail outlets.

Because of its close proximity to the Big Horn Mountains, recreational opportunities abound for persons traveling through the county. In 1981, travel expenditures in the county totaled $15,566,000, according to Travel Data Center figures. Wages and salaries paid employees directly serving travelers amounted to $2,965,000, generating 433 jobs. State tax revenue generated by travel spending totaled $462,000, while local tax revenue generated by travel spending totaled $136,000.

Washakie County also ranks high among all Wyoming counties in the production of certain crops. In 1982, the county ranked second in the production of sugar beets, fourth in corn grain production, and fifth in barley production.

OUTLOOK

Slow growth is anticipated for Washakie County throughout the 1980's. A few projects, such as a proposed slaughter plant, could result in some new employment, but nothing appears on the horizon that would result in substantial new population or economic impacts.

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_____. Economic Blueprint Component of Public Investment Plan: Worland, Wyoming, Department of Economic Planning and Development (December, 1975).

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ECONOMIC CHANGES

ECONOMIC CHANGES

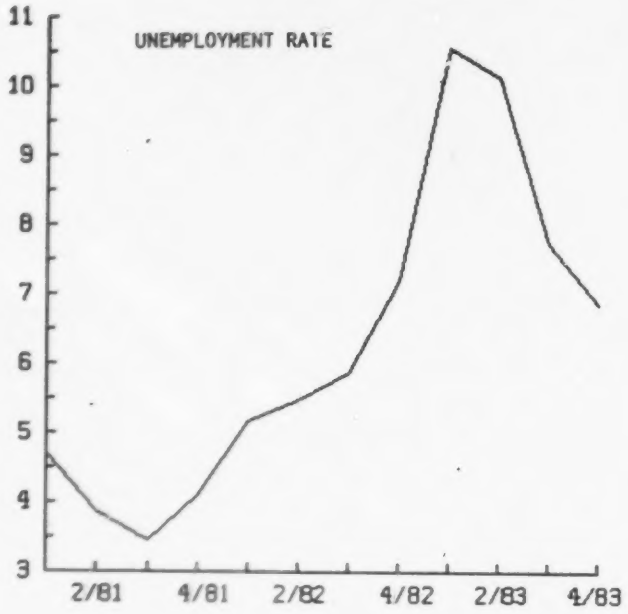
(Editor's note: The purpose of this section is to point out areas in the Wyoming economy in which noteworthy changes occurred, or in which existing trends were significantly accentuated, during the latest reporting period.)

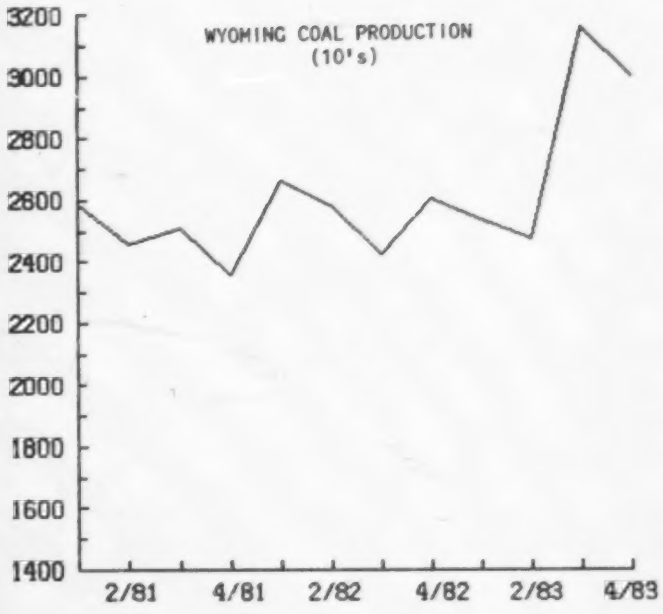
While the recovery in Wyoming generally lagged behind the national economy, some signs of improvement appear in the fourth quarter 1983 figures.

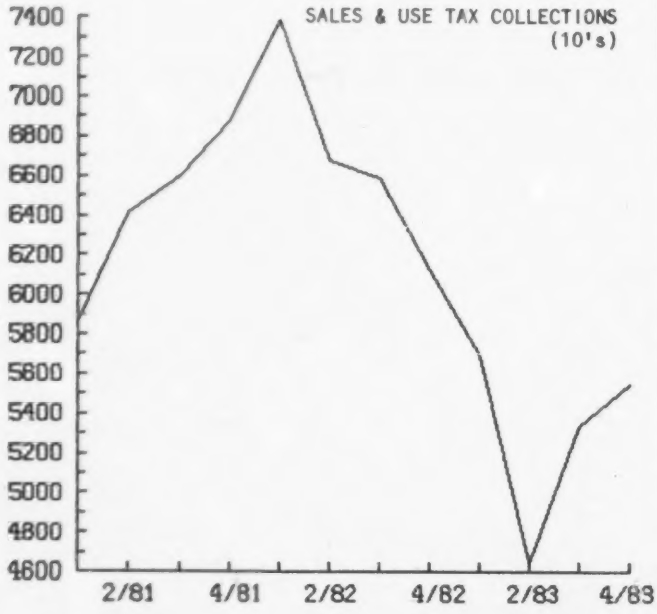
The unemployment rate continued to fall, to 6.9 percent during the fourth quarter. This was down from 7.7 percent during the third quarter and marked the third straight quarter of decline. At the same time, the number of initial unemployment claims filed was 10,507 during the fourth quarter of 1983, compared to 14,183 during the fourth quarter of 1984. Initial claims filed also were less when compared to year earlier data.

In the energy sector, Wyoming coal production finished strong during the last half of 1983. During the third quarter, 31,639,000 tons of coal were produced, while 30,020,000 tons were produced during the fourth quarter. It was the strongest consecutive quarter production registered during the Wyoming Quarterly Update's 12-quarter reporting period.

Sales and use tax collections also continued upward during the fourth quarter at $55,424,000, continuing an upward trend that began during the third quarter of 1983, after five consecutive quarters of decline.







WYOMING DATA

Table 10: Agriculture[1]

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. Timber Cut in Wyoming National Forests (MBF)	25895.	5810.	25613.	33929.	11658.	4285.	23430.	26318.	14707.	5208.	35941.	46981.
Price Indices[2] (1967=100)												
2. Wyoming Crops, Prices Received-Latest	347.	371.	315.	288.	260.	249.	245.	244.	243.	256.	284.	280.
3. Wyoming Crops, Prices Received-Average	350.	347.	325.	301.	275.	251.	239.	243.	243.	251.	268.	280.
4. U.S. Crops, Prices Received-Latest	280.	265.	232.	234.	232.	240.	239.	220.	231.	243.	253.	262.
5. U.S. Crops, Prices Received-Average	278.	271.	249.	232.	238.	240.	235.	221.	224.	245.	254.	262.
6. Wyoming, All Commodities, Prices Received-Latest	279.	290.	270.	239.	256.	256.	250.	225.	263.	251.	238.	245.
7. Wyoming, All Commodities, Prices Received-Average	277.	284.	267.	251.	248.	261.	246.	234.	249.	257.	237.	240.
8. U.S., All Commodities, Prices Received-Latest	261.	260.	243.	233.	244.	252.	248.	232.	243.	246.	250.	256.
9. U.S., All Commodities, Prices Received-Average	263.	260.	252.	236.	243.	251.	247.	234.	240.	249.	247.	251.
10. Wyoming Livestock, Prices Received-Latest	259.	265.	257.	224.	254.	258.	251.	219.	269.	250.	224.	235.
11. Wyoming Livestock, Prices Received-Average	255.	266.	250.	236.	239.	264.	248.	231.	251.	258.	228.	228.
12. U.S. Livestock, Prices Received-Latest	246.	257.	254.	233.	254.	262.	257.	243.	254.	248.	240.	252.
13. U.S. Livestock, Prices Received-Average	250.	251.	256.	240.	248.	261.	258.	245.	253.	252.	242.	242.
14. Prices Paid by U.S. Farmers-Latest	302.	306.	306.	304.	314.	317.	316.	315.	321.	324.	326.	328.
15. Prices Paid by U.S. Farmers-Average	300.	305.	306.	305.	313.	315.	317.	315.	320.	324.	325.	327.

[1] First time readers of WQU should refer to the "Format" page (in back) for an explanation of abbreviations and table formats.
[2] The index for the last month (latest) of each quarter, along with the average of the three monthly indices of each quarter.

Sources: Series 1: United States Forest Service. "Timber Cut and Sold, Convertible Products." Region 2 and 4 reports published quarterly.
Series 2-15: Wyoming Crop and Livestock Reporting Service. Bi-weekly Ag Statistics.

Table 11: Banking and Finance

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. Total Bank Loans (T$)	1808747.	1898325.	1929706.	1984965.	2004233.	2123492.	2138495.	2147498.	2172221.	2224108.	2267097.	2277757.
2. Total Bank Deposits (T$)	2968348.	3112270.	3161593.	3278504.	3237333.	3322621.	3345619.	3587554.	3537206.	3669552.	3683748.	3789387.
3. Total Bank Demand Deposits (T$)	736161.	737837.	759658.	731429.	657349.	635856.	649332.	680332.	576257.	579672.	595447.	601296.
4. Bankers' Loan-Deposit Ratio	.609	.610	.610	.605	.619	.639	.639	.599	.614	.606	.615	.601
5. Savings and Loan Mortgage Loans (T$)[1]	776172.	788526.	785208.	778334.	762153.	760622.	766593.	765708.	758938.	760041.	775159.	775795.
6. Savings and Loan Deposits (T$)	874533.	891585.	911587.	904212.	921642.	907758.	893087.	895889.	921290.	960250.	966113.	1006927.
7. Prime Interest Rate[2]	18.0	20.0	20.0	15.8	16.2	16.2	13.5	11.8	10.5	10.5	11.0	11.0

[1]Only members of the Federal Home Loan Bank Board are included.
[2]Rate is for the last month of the quarter.

Sources: Series 1-4: Wyoming State Bank Examiner Quarterly Report.
Series 5-6: Federal Home Loan Bank of Seattle, Monthly Report. Comparative statistical analysis of member institutions.
Series 7: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published Monthly.

Table 12: Business Conditions

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. New Domestic Corporations	424.	459.	459.	400.	389.	428.	403.	377.	348.	410.	366.	309.
2. New Foreign Corporations	294.	357.	356.	358.	357.	326.	285.	272.	240.	259.	331.	292.
3. Total New Corporations	718.	816.	815.	758.	746.	754.	688.	649.	588.	669.	[illegible]	601.
4. Business Failures	40.	25.	27.	33.	31.	46.	54.	58.	47.	68.	[illegible]	58.
5. Value of Business Failures ($)	1674135.	-635217.[1]	-240995.[1]	2987139.	2331991.	6842595.	-13034324.[1]	-6860186.[1]	6438421.	6400333.	535473.	-8163171.[1]
6. Personal Bankruptcies	132.	104.	98.	85.	96.	125.	123.	122.	140.	152.	172.	141.

[1]Assets exceed liabilities.

Sources: Series 1-3: Secretary of State. New and Foreign Corporations. Monthly report.
Series 4-6: Cheyenne Credit Bureau. Wyoming bankruptcy cases, business failures, and value of failures. Weekly publication.

Table 13: Construction

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. New Residential Dwelling Units	777.	978.	1072.	784.	851.	1050.	872.	689.	709.	1113.	993.	725.
2. Value of Residential Dwellings Constructed (M$)	40.2	56.1	67.8	40.4	40.4	58.6	51.2	41.9	50.5	75.1	60.4	44.0
3. Value of Nonresidential Construction (M$)	42.6	68.5	63.1	57.6	25.2	59.8	63.1	35.2	38.0	54.4	53.3	53.9
4. Building Permits Issued in Selected Wyoming Cities	3027.	4040.	3755.	2516.	2317.	3353.	4295.	2473.	2762.	3586.	3701.	2163.
5. Value of Authorized Construction	68995.	63557.	91789.	53839.	49768.	62939.	101359.	35383.	37119.	46402.	68715.	51915.
6. Mortgage Interest Rate[1]	13.48	14.12	14.69	15.23	14.93	14.74	14.34	13.09	12.97	11.90	12.08	11.95

[1]Conventional first mortgage for new home purchase. U.S. average for last month of quarter.

Sources: Series 1-3: F.W. Dodge Division of McGraw-Hill. "Dodge Construction Potentials." Published monthly.
Series 4-5: Institute for Policy Research. "Local Construction Reports." Survey of authorized construction in selected cities conducted monthly.
Series 6: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published monthly.

Table 14: Consumers

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. New Truck Registrations	3723.	4175.	4067.	3502.	4176.	3636.	3024.	3230.	3233.	3415.	3417.	4363.
2. New Car Registrations	4926.	4879.	4664.	3808.	4249.	4042.	3506.	3610.	3272.	3539.	3671.	3483.
3. Wyoming Personal Income (M$)	1337.	1403.	1477.	1474.	1476.	1524.	1477.	1470.	1398.	1484.	1589.	INA
4. US Disposable Income[1] (B$)	1968.	2010.	2092.	2121.	2128.	2159.	2192.	2228.	2256.	2301.	2362.	2424.
5. US Personal Income (M$)	581161.	601311.	615581.	632052.	620600.	636571.	639828.	657199.	651843.	666761.	682774.	INA
6. Latest US Consumer[2] Price Index (1967=100)	265.2	271.4	279.1	281.1	282.5	290.1	292.8	292.0	293.0	297.2	300.8	301.5
7. Quarter's Average US CPI	263.1	269.1	276.7	280.4	281.9	286.8	292.3	292.9	292.5	296.1	299.5	301.4
8. Liquor Sales (T$)	6845.	9397.	9396.	11365.	7789.	9057.	8917.	10464.	7102.	7868.	8455.	9863.

[1]Revised series. Estimates of the national income and product accounts, of which disposable personal income is a part, have been revised by the U.S. Department of Commerce for the last three years. As is usually done in July, new source data have been incorporated and seasonal factors have been updated. More information regarding the revisions can be found in the July, 1983 issue of the U.S. Department of Commerce publication Survey of Current Business.
[2]Number shown is for the last month of the quarter. CPI shown is the index for wage earners and clerical workers, not the CPI-U.

Sources: Series 1-2: R.L. Polk and Company Motor Statistical Division. "National New Vehicle Registration Service." Published monthly.
Series 3,5: Business Week. Monthly personal income for states, regions, and the U.S. Reported monthly.
Series 4,6,7: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published monthly.
Series 8: Wyoming Liquor Commission. Sales data are reported to IPR.

Table 15: Employment and Labor[1]

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. Civilian Labor Force	236480.	255956.	260041.	247523.	243298.	257820.	258974.	251909.	250727.	270361.	265371.	256902.
2. Employment	225414	246075.	251110.	237402.	230717.	243696.	243798.	233790.	224223.	242945.	244831.	239275.
3. Unemployment	11066.	9881.	8931.	10121.	12581.	14123.	15177.	18120.	26503.	27416.	20540.	17627.
4. Unemployment Rate	4.7	3.9	3.4	4.1	5.2	5.5	5.9	7.2	10.6	10.1	7.7	6.9
5. Initial Claims Filed	8231.	5901.	5463.	8837.	11237.	11225.	10894.	14183.	15650.	11576.	8796.	10507.
6. Applications Received	13026.	13522.	13884.	10537.	12070.	14838.	15359.	13102.	12950.	11787.	12144.	9359.
7. New Non-Agricultural Openings	6912.	9903.	12991.	8010.	6119.	8344.	9190.	7035.	4724.	6185.	7992.	5528.
8. New Non-Agricultural Placements	5649.	7681.	10072.	6931.	5138.	7161.	8079.	5450.	4106.	6608.	10529.	6446.
9. Miners' Average Weekly Hours	43.8	42.8	41.5	42.5	42.0	41.7	39.7	38.1	39.8	38.5	39.6	39.2
10. Miners' Average Weekly Pay ($)	448.66	453.75	447.13	459.64	476.53	480.37	471.92	464.35	484.66	472.75	481.23	493.28
11. Miners' Average Hourly Wage ($)	10.24	10.61	10.78	10.81	11.34	11.52	11.90	12.18	12.17	12.29	12.15	12.58

[1]The most recent year's data are preliminary.

Sources: Series 1-11: Wyoming Employment Security Commission. Labor Force Trends. Published Quarterly.

Table 16: Energy and Mineral Production

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. Wyoming Coal (TST)	25901.	24574.	25108.	23556.	26586.	25809.	24257.	26054.	25400.	24746.	31639.	30020.
2. U.S. Coal (TST)	206426.	145696.	235672.	224793.	219743.	209771.	195253.	189307.	190260.	180439.	204127.	197833.
3. Wyoming Oil (TBPD)	357.	358.	358.	358.	358.	354.	324.	324.	326.	334.	323.	317.
4. U.S. Oil (TBPD)	8583.	8548.	8550.	8566.	8629.	8657.	8653.	8679.	8670.	8663.	8672.	8663.
5. Wyoming Natural Gas[1] (MCFD)	995.	1293.	1118.	1068.	1136.	1138.	1075.	1306.	1128.	1222.	1011.	INA
6. U.S. Natural Gas[1] (MCFD)	56221.	55013.	53747.	53728.	55449.	50977.	48349.	48335.	47208.	42668.	44226.	INA

[1] Includes revised data.
Sources: Series 1,2,5, and 6: U.S. Department of Energy. Energy Data Reports. Gas data are published monthly, and coal data are published weekly.
Series 3-4: The Oil and Gas Journal. U.S. and Wyoming Oil Production published weekly.

Table 17: Government

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. Sales and Use Tax Collections (T$)	58605.	64136.	66012.	68766.	73830.	66759.	65903.	61208.	56909.	46453.	53361.	55424.
2. Violent Crime[1]	420.	468.	599.	553.	373.	389.	411.	295.	301.	274.	409.	241.
3. Nonviolent Crime[2]	5430.	5783.	6111.	5299.	4811.	5778.	6346.	5093.	4802.	4821.	5319.	4219.
4. Stolen Property (T$)	3601.	4471.	4421.	3201.	3541.	4562.	3982.	2963.	3176.	2918.	3005.	2892.
5. Stolen Property Recovery Rate	36.0	45.4	40.6	58.6	46.9	49.3	42.8	42.8	46.5	36.9	40.3	46.1
6. Percent of Crimes Cleared[3]	21.6	23.4	19.5	22.3	24.9	21.0	20.1	21.3	22.8	21.8	24.2	23.5

[1]Murder, negligent homicide, forcible rape, robbery, aggravated assault.
[2]Burglary, larceny, auto theft.
[3]Clearance of a crime indicates resolution of a complaint by arrest or other extraordinary means.

Sources: Series 1: Wyoming Department of Revenue and Taxation, Sales and Use Tax Division. "Net Collections by Business Class by County." Published monthly.
Series 2-6: Uniform Crime Reporting Center for Criminal Justice Research, Division of Criminal Identification, Office of the State Attorney General. "Crime in Wyoming." Published quarterly.

Table 18: Tourism

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
Visitors, National Parks and Monuments												
1. Yellowstone	74693.	609642.	1715175.	149682.	82758.	600071.	1614242.	116082.	65368.	553986.	1653211.	133088.
2. Grand Teton	206147.	847464.	2147775.	393843.	185935.	820236.	2066704.	371007.	183675.	686326.	1462761.	217086.
3. Devil's Tower	13425.	63064.	205660.	18159.	9425.	86305.	161989.	13232.	8912.	87506.	160953.	16894.
4. Fossil Butte	339.	3795.	7769.	1018.	596.	6691.	10303.	1601.	626.	5134.	9120.	4206.
5. Fort Laramie	6309.	40192.	64598.	10190.	5037.	31447.	51881.	6906.	4887.	28311.	56592.	7665.
6. Big Horn NRA-South[1]	18509.	34846.	56566.	27820.	17701.	42059.	53839.	30720.	13428.	44977.	56419.	29358.
Other Tourism Indicators												
7. Traffic Count (Avg. # of Vehicles/Day)	86957.	125992.	169035.	103438.	103864.	126037.	166170.	97892.	84187.	122665.	167385.	97696.
8. Hotel, Motel, and Camp Sales Tax (T$)	1036.	1272.	2073.	1447.	1247.	1273.	2226.	1323.	912.	1048.	2017.	1397.
9. Gasoline Sales (TGL)	74027.	93721.	109335.	87500.	72548.	93556.	108733.	81347.	70457.	81160.	107116.	78000.[2]

[1]Big Horn Canyon N.R.A. is only partially in Wyoming. Only visitation for the Wyoming part is shown.
[2]Estimated from trend and October and November data.

Sources: Series 1-6: Monthly visitor use reports of the National Park Service.
Series 7: Traffic Survey Unit - Planning Branch, Wyoming State Highway Department. "Selected Recording Stations Traffic Counter Data." Published monthly.
Series 8: Wyoming Department of Revenue and Taxation monthly report.
Series 9: Petroleum Association of Wyoming. Monthly Gasoline Gallonage Report.

Table 19: Utilities[1]

Calendar Quarters	1/81	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83
1. Residential Electric Connections	168477.	169494.	169777.	174369.	174018.	174126.	177081.	177968.	179111.	179717.	178762.	178535.
2. Residential Electric Consumption (TKWH)	487386.	331256.	282226.	218361.	504636.	375401.	302786.	391608.	489892.	392223.	294755.	395182.
3. Commercial Electric Connections	29465.	29605.	30522.	30047.	30833.	31086.	30841.	30388.	30772.	31194.	30533.	31404.
4. Commercial Electric Consumption (TKWH)	298580.	288617.	317998.	303091.	354594.	319879.	331351.	327961.	351633.	327565.	353743.	342219.
5. Industrial Electric Connections	3377.	3384.	3484.	3590.	3581.	3451.	3702.	3751.	3647.	3667.	3655.	3624.
6. Industrial Electric Consumption (TKWH)	1100964.	1097628.	1112398.	1156967.	1266782.	1179112.	1178792.	1225845.	1471528.	1388817.	1397176.	1016334.
7. Other Connections[2]	3579.	3266.	4102.	3652.	4520.	4778.	3243.	2857.	2819.	3059.	3164.	2791.
8. Other Consumption (TKWH)	30333.	45006.	72994.	79409.	48237.	31570.	70139.	12240.	6780.	8710.	46427.	13306.
9. Residential Natural Gas Connections	73699.	73712.	72966.	74828.	75677.	75413.	74861.	75955.	76567.	76449.	74638.	75037.
10. Residential Natural Gas Consumption (TCF)	3923502.	2180779.	814900.	2499236.	4607468.	2504865.	872772.	2972244.	6531664.	8926691.	2871311.	8444801.
11. Commercial Natural Gas Connections[3]	6595.	6557.	6385.	6393.	6482.	6552.	6452.	6476.	6873.	6869.	6710.	6817.
12. Commercial Natural Gas Consumption (TCF)[3]	1766515.	970295.	382137.	943319.	1955899.	1075767.	385052.	1196763.	3667569.	5716746.	1792146.	4865053.
13. Industrial Natural Gas Connections	92.	94.	90.	89.	89.	90.	90.	95.	97.	97.	97.	98.
14. Industrial Natural Gas Consumption (TCF)	7345317.	5607535.	4959825.	7479593.	7328389.	5335475.	5564715.	7918440.	7626560.	10221456.	9291988.	13201149.
15. Other Natural Gas Connections[3]	348.	344.	349.	398.	400.	404.	409.	409.	48.	48.	46.	45.
16. Other Natural Gas Consumption (TCF)[3]	252249.	147575.	87695.	196349.	299920.	134722.	44697.	138389.	176.	322.	5323.	267.
17. Business Telephone Connections	45795.	45495.	47932.	47828.	48501.	49003.	49179.	48824.	48052.	46102.	46550.	45715.
18. Private Telephone Connections	158740.	159456.	160688.	163100.	163790.	162953.	162126.	162394.	160658.	155637.	103791.	146306.

[1]Some small utilities do not report, hence the data are slightly less than actual state totals. The data are consistent. The same utilities' reports are included in each figure.
[2]"Other" includes agriculture, municipal, and other public.
[3]Figures for the first and second quarter of 1983 reflect a change in the authority connections/consumption made by the Northern Utilities. Prior to January 1983, the company listed public authority under the category of other natural gas connections/consumption. Northern Gas now combines public authority connections/consumption with their commercial natural gas connections/consumption.

Sources: Series 1-18: Reports to IPR by selected electric, natural gas, and telephone utility companies. Survey conducted monthly.

Wyoming Comparative Cost of Living Index* (January 4-6): Cheyenne = 100

CITY	RANK	ALL ITEMS	FOOD	HOUSING	TRANSPORTATION	MEDICAL
Jackson	1	122.54	112.34	147.66	104.36	105.03
Gillette	2	115.34	111.19	132.90	103.38	104.34
Sundance	3	113.19	114.83	128.76	96.82	100.19
Evanston	4	112.07	102.17	131.80	99.51	101.67
Kemmerer	5	110.25	100.17	124.46	101.63	105.75
Casper	6	109.53	109.03	114.53	105.78	108.46
Rock Springs	7	104.85	106.16	107.64	102.02	97.21
Sheridan	8	104.32	109.36	106.44	97.12	101.27
Pinedale	9	104.03	105.80	106.55	101.27	101.79
Riverton	10	103.66	103.58	108.35	100.76	101.71
Wheatland	11	103.60	104.96	106.63	101.34	98.23
Newcastle	12	102.27	101.33	105.29	97.13	102.49
Laramie	13	101.61	102.85	105.55	97.62	95.88
Thermopolis	14	101.32	109.38	98.18	98.66	100.92
Douglas	15	101.30	106.92	97.14	101.64	107.66
Cody	16	101.21	104.97	100.21	101.36	100.94
Cheyenne	17	100.00	100.00	100.00	100.00	100.00
Buffalo	18	99.84	103.27	96.54	97.23	101.11
Worland	19	99.66	107.65	96.31	97.83	100.44
Rawlins	20	98.59	105.74	97.43	99.70	96.75
Lusk	21	98.38	105.12	90.57	99.92	99.55
Greybull	22	95.38	104.46	83.75	100.53	99.75
Torrington	23	91.89	98.39	81.22	95.76	99.77

*Apparel and Recreation Indices not shown.

Source: Wyoming Department of Administration and Fiscal Control.

Format

For data available at least quarterly, the last 12 quarters are printed in WQU. In this edition, published series begin with the 1st quarter of 1981, and end with the 4th quarter of 1983. For other data series (primarily annual), the most recent observations, up to 12, are published in WQU. Most annual data series will reappear in WQU only when updated, or about every fourth issue. Quarters are calendar quarters. For example, the 3rd quarter is composed of July, August, and September. In the table headings and narratives, a particular quarter will be indicated by notation such as 2/80 (2nd quarter, 1980), 1/80 (1st quarter, 1960), and so on.

Beside each data series name is an abbreviation in parentheses. The abbreviation indicates the units (such as dollars, tons, feet, miles, etc.) of the data. The key to the units abbreviations is below.

Throughout WQU, all data are for the state unless otherwise stated. The most recent year's data should be viewed as preliminary, due to revisions. The acronymn "INA" signifies that information is not available.

The reader should be attentive to the footnotes at the bottom of pages, particularly those accompanying a data table. The footnotes help the reader to properly interpret the data, and they also indicate when more detailed (by subject or by area) data than that which is shown is available from IPR. A list of sources follows the footnotes.

Key to Units Abbreviations

MBF - Thousand Board Feet
TKWH - Thousand Kilowatt Hours
$ - Dollars
M$ - Millions of Dollars
B$ - Billions of Dollars
T$ - Thousands of Dollars
H$ - Hundreds of Dollars
ST - Short Tons
TST - Thousands of Short Tons
MCFD - Million Cubic Feet Per Day
TBPD - Thousands of Barrels Per Day
GL - Gallons
TCF - Thousands of Cubic Feet
KWH - Kilowatt Hours
TGL - Thousands of Gallons
HBBL - Hundreds of Barrels
HMCF - Hundreds of MCF Per Day
HST - Hundreds of Short Tons
$/ST - Dollars Per Short Ton

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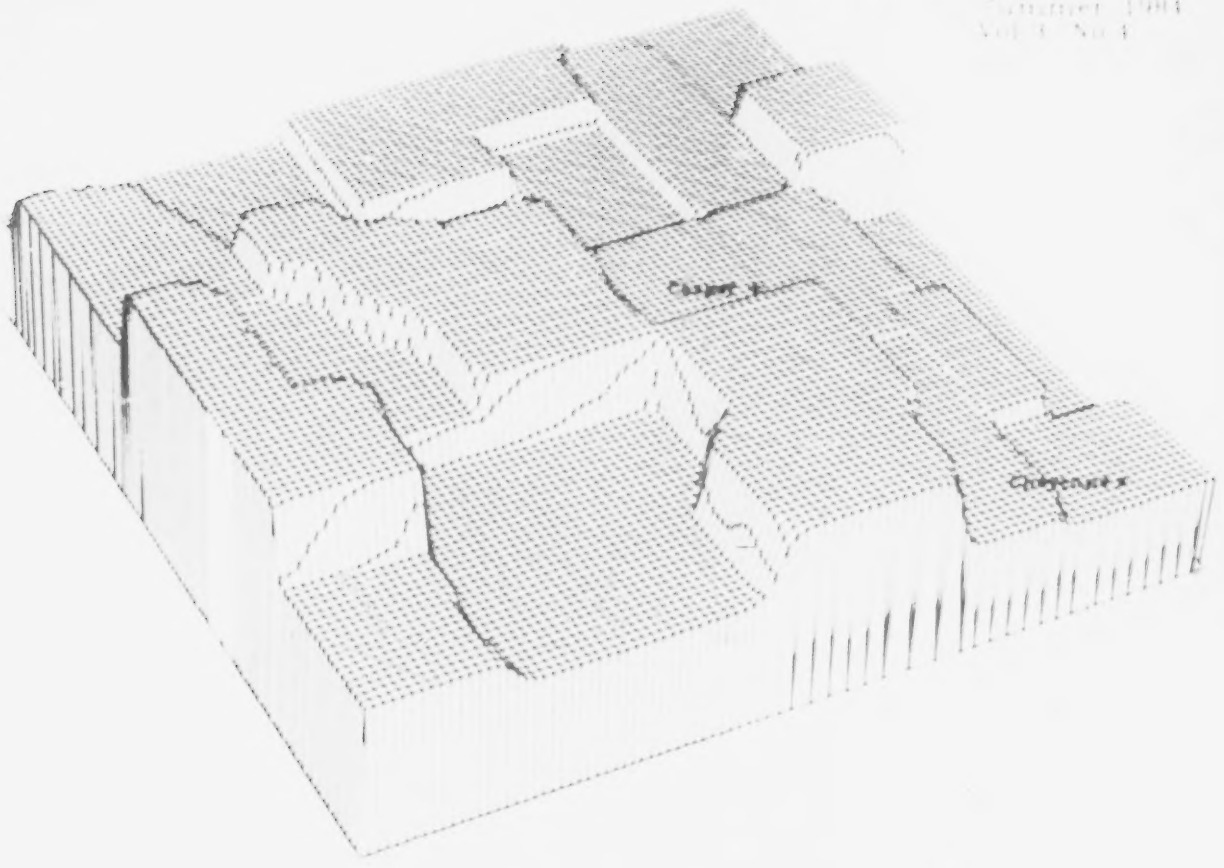
WYOMING QUARTERLY UPDATE

Summer 1984
Vol. 8 No. 4



JPR

April 1984 County Unemployment Rates

Wyoming Quarterly Update

Wyoming Quarterly Update (WQU) represents the efforts of the Institute for Policy Research (IPR) at the University of Wyoming to provide improved data access services. The data presented in WQU are assembled from secondary sources, such as government agencies and private industry. The staff of IPR greatly appreciates the ongoing cheerful cooperation of each of the data sources listed in the bibliography.

WQU provides current indicators and timely, easily accessible data. Most of the data published in WQU are updated quarterly with the most current numbers. The complete data sets from which WQU originates are maintained, together with documentation by IPR. Readers are encouraged to contact IPR to find out how to gain access to data which does not appear in the WQU. Many data series, such as gasoline sales and taxation data, span more than 30 years. Numerous other series cover 20 years or more.

Efforts to expand the subject and geographic detail (county data) of data sets will be made continuously. Featured for the first time in this edition is an industry profile. In this edition, a discussion of the coal industry is presented.

The cover of each edition features a contour map illustrating the geographic distribution of a particular variable. This edition presents a contour map depicting county unemployment rates for April 1984.

First-time readers of WQU should refer to the "format" explanations on page 48 for keys on how best to use and interpret data presented in this publication.

For additional information, contact WQU editor S.T. Mast at:

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UNIVERSITY OF WYOMING

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WYOMING SCENE

Overview and Perspective

Expansion in the national economy continued to roll throughout the spring months, giving rise to new fears that the economy might overheat. However, by late in the second quarter, some signs had begun to appear that the expansion was slowing down to a more modest, sustainable rate.

Capital spending by businesses was experiencing something of a boom during the second quarter. According to Commerce Department figures, American businessmen reported plans to spend $309 billion for new plants and equipment in 1984, compared to $269.2 billion in 1983 and $282.7 billion in 1982. This represents an increase of 14.8 percent in real terms over the pace set in 1983 and is the Commerce Department's third upward revision of capital spending since last fall.

According to a survey conducted by Dun & Bradstreet Corp., capital spending for new plants and equipment was expected to be particularly strong among smaller size companies. For companies with fewer than 1,000 employees, such spending is expected to rise 20.4 percent this year, while companies with 1,000 to 5,000 employees are expected to spend an additional 17.4 percent this year.

Capacity utilization rates also continued to climb, up 0.6 percentage point in April and 0.2 percentage point in May, to 81.7 percent, according to Federal Reserve Board statistics. The modest expansion in May was greeted by many economists with sighs of relief, allying fears that too rapid an expansion in the economy could drive up interest rates, set off a new round of inflation, and plunge the economy back into a recession. Robert Ortner, chief economist for the Commerce Department, noted that a common rule of thumb is that once factory utilization reaches a level of about 84 percent, inflation tends to increase.

However, some modest rises in capital goods prices are expected. In a survey released in May, McGraw-Hill economists reported that business executives are looking for capital goods prices to rise about 5.6 percent this year. Through June, capital goods prices were rising at an annual rate of about 4.5 percent.

Nevertheless, the general outlook with respect to inflation remained positive. In May, the Producer Price Index stayed cool, with overall prices nearly frozen for a second straight month.

Some slackening in consumer spending also was in evidence, increasing only 1.1 percent in May, compared to a 1.6 percent increase in April. Retail sales also gained only slightly in May, rising to $107.3 billion. However, economists expected second quarter retail sales to come in higher overall than first quarter figures, bolstered in large measure by a beefy 3.1 percent retail sales increase in April. Sales of hardgoods were particularly vigorous in April, rebounding in all major categories of durable goods (automobiles, building materials, furniture, home furnishings, and appliances).

The unemployed have continued to benefit by the expanding economy. In May, the unemployment rate nationally fell to 7.5 percent, following three consecutive months in which the rate held at 7.8 percent. An additional 890,000 were employed during that period, bringing the total number of persons employed to a record 105.3 million. Since the unemployment rate rose to a post-Depression high

of 10.7 percent in November 1982 (with 12 million people out of work), the number of persons with jobs has increased by 6.3 million.

The news for the housing industry was not so good. Housing starts increasingly began snagging on higher interest rates. New home construction dropped 10.5 percent in May, according to Commerce Department figures, in what many thought might be the beginning of a long, downward decline as a result of rising mortgage interest rates. The decline had been expected because fixed-rate, long-term home loans had risen to over 14 percent--a point at which many potential home buyers are unable to qualify for loans.

In other interest rate news, on June 25, 1983, major U.S. banks raised the prime rate 0.5 percentage point to 13 percent, its highest level since October 1982. It was the fourth such increase since March, and some analysts were predicting the prime rate could climb to 14 percent by the end of the year. The increases were attributed to the continued economy recovery and to heavy government borrowing.

The Reagan Administration, sensitive to higher rates that could choke off the economic recovery in an election year, reacted strongly to the news. President Reagan said interest rates were being kept high by unfounded fears that inflation might be re-ignited. However, U.S. bankers defended the action, pointing to the growing federal deficit as justification.

Latin American nations, with huge debts to the U.S. Treasury, also reacted strongly. The additional interest will add hundred of millions of dollars to already staggering debts.

At the same time the rate hikes were announced, it was reported that the U.S. government spent a record $33.9 billion more than it took in during May. During the first eight months of the fiscal year, the deficit totaled $140.2 billion, a rate that would result in an annual deficit of more than $210 billion (compared to last year's record $195.4 billion).

In Wyoming, signs of recovery became more apparent during the second quarter. For the fifth consecutive month, retail sales in Wyoming increased in May over year-earlier figures, according to a Casper Star Tribune analysis. In May, retail sales increased by 6.1 percent, preceded by a 6.2 percent increase in April. Sales increases were registered in 19 counties, while only four registered reduced sales. The largest gains during the three-month reporting period ending May 1984 were in Teton County (up 39.20 percent), Niobrara County (up 34.60 percent), and Hot Springs County (up 21.80 percent).

In the minerals sector, there also was room for optimism. By the third week in May, the rig count had reached 83, compared to only 59 in May 1983. Coal production during the first two months of 1984 also was running at levels slightly higher than in 1983.

Agriculture, on the other hand, was suffering through the after-effects of a devastating spring storm that wrecked havoc on livestock producers throughout northeastern Wyoming. The state government has initiated steps to assist livestock producers cope with their losses, but it appears that for many 1984 will be a most difficult year.

S.T. Mast, IPR

# #

Summer Minerals Outlook

OVERVIEW

The news is still good in the second quarter of 1984. Highlighting cautious optimism for the remainder of 1984 are the year-end oil and gas production statistics for 1983. The Wyoming Oil and Gas Conservation Commission reported gross production of oil was 120,979,721 barrels, or 2.4 percent more than 1982. What is more important, this increase has reversed the steady 2 percent to 3 percent production decline that has characterized Wyoming's oil production since 1978. Increased oil production is forecast again in this the centennial year of the oil and gas industry. On the other hand, Wyoming's average wellhead oil price in 1983 (estimated at $27.20/barrel) was about $1.00/barrel lower than in 1982. Although most analysts predict that the current escalation of the conflict between Iran and Iraq will not have any major effect on U.S. production or prices, if they are wrong, the demand and price can only increase. Wellhead oil prices in the first month of 1984, however, were down 25 cents per barrel.

Natural gas production in Wyoming increased to 539.8 billion cubic feet in 1983, a 13.8 percent increase over 1982. The average price paid for natural gas produced in Wyoming apparently increased about 28 cents per thousand cubic feet, to an estimated $3.50. Again, natural gas production was limited by market demand rather than supply constraints, and production could increase rapidly if the demand grows.

Other mineral production, except for uranium and, of course, the now all but defunct iron ore industry, are tracking or exceeding 1983 levels of production. In the first two months of 1984, for example, Wyoming coal production was slightly more than last year. In 1984, the state's coal production is currently forecast at 118 million tons, an increase of 5 percent over 1983. Renegotiated contracts, however, continue to indicate a trend to lower prices. The most recently announced price adjustment reduced an FOB mine price over 29 percent (see Coal Update in this issue).

Although there is still no significant production of precious metals in Wyoming, exploration for gold, silver, and other precious metals and diamonds continued across the state (see Metal and Precious Stones Update in this issue).

Recovered sulfur derived from the state's petroleum industry is a seldom mentioned but rapidly growing product from Wyoming's sour gas reservoirs. Two large sour gas plants in the Thrust Belt of westernmost Wyoming are continuing to produce increasing quantities of the element as gas production from that area increases. Only the weak market for natural gas is restricting this production. Other sour gas plants are planned. Although overall U.S. production of sulfur declined in 1983, recovered sulfur from the petroleum industry continues to replace Frasch production of sulfur and now accounts for 53.3 percent of the total U.S. production.

In 1982, Wyoming's share of U.S. recovered sulfur production was almost 69,000 tons, with a value of $3.3 million. This production equated to 14.7 percent of the 4.7 million tons that were produced in that year. U.S. production of recovered sulfur increased to 5.4 million tons in 1983. Although Wyoming's share of this 1983 production is not available, combined production from Amoco's Whitney Canyon plant and Chevron's Carter Creek plant could reach 840,000 tons of sulfur each year. At 1982 prices, this tonnage would be valued at close to $40 million. Also, sulfur concrete is emerging as a potentially large, new nonagricultural market for sulfur.

Gary B. Glass, State Geologist, Wyoming Geological Survey

OIL AND GAS UPDATE

Seasonal weather constraints are cited as reasons for the rig count remaining below 100 well into May. By the third week in May, however, the rig count had reached 83, as compared to 59 in May of 1983, indicating the oil and gas industry is still on the upswing. Activity is expected to increase as weather conditions improve.

The Wyoming Oil and Gas Conservation Commission adopted several amendments to its Seismic Rule No. 339, effective May 1. The new rule, which defines geophysical contractors, seismic contractors, and client companies, also requires a permit before commencing seismic activity in the state. The permit may be revoked for failure to comply with commission rules, thereby prohibiting the seismic contractor from further work. To obtain a permit, representatives of the seismic contractor and the client company must schedule an advance meeting with the commission staff and furnish information pertaining to the project. The new rule also requires a blanket bond of $50,000 and stipulates that the client company along with the seismic operator may be held responsible for noncompliance with commission rules.

Howard Schrinar was recently appointed to the vacant post of Commissioner of Public Lands. As Commissioner of Public Lands, Schrinar is also a member of the Wyoming Oil and Gas Conservation Commission, the state's oil and gas regulatory agency. In a recent interview, Schrinar, a lawyer with oil and mining company experience, said he hopes to initiate a program to better identify what is happening on state lands. He also intends to continue with the oil and gas lease auction system since there were too many opportunities for fraudulent activities in the old lottery system.

In May, the state's fifth oil and gas lease auction generated $1.52 million in revenue from bids on 200 parcels. This compared to $2.31 million in January and $2.17 million in March, and is the smallest total of the five auctions that have been held under the new system. The highest bid in the May auction was Amerex Corporation's $390 per acre bid for a 560-acre parcel in Campbell County, adjacent to the Bone Pile field.

A ruptured pipeline near Evanston, Wyoming, spilled 6,000 barrels of crude oil into the Bear River on May 26. Amoco Pipeline Company, the operator, indicated that high water in the Bear River may have caused the break. Cleanup is expected to take several weeks. Evanston's water supply is 15 miles upstream from the spill, so no contamination of their water source occurred.

Chevron Chemical Company plans to start construction of a $250-million fertilizer plant in the Rock Springs area in June. The peak construction force will number about 1,000 by the summer of 1985. When completed, the plant will have an annual capacity of 400,000 tons of ammonium phosphate fertilizer. Phosphate will be transported via a 95-mile slurry pipeline from a Chevron mine near Vernal, Utah. Chevron's Carter Creek gas processing plant in Uinta County, Wyoming, will supply the sulfur.

Gulf Exploration's subthrust test near Story, Wyoming, was completed as a dry hole in March. The well was drilled to a total depth of 15,710 feet at a cost of $10 million to $12 million. Gulf has also appealed a decision of the Wyoming Oil and Gas Conservation Commission which prevented Gulf from constructing its preferred access road to a second drilling site. The outcome of that appeal is pending in court. There is some indication that Gulf may want to continue its exploration of the subthrust structure targeted in the first hole.

Gulf's well was the first test of subthrust structure on the east flank of the

Bighorn Mountains, penetrating more than 5,000 feet of granite before reaching underlying sedimentary rocks. More importantly, Gulf's well continues a relatively recent exploration trend to test the oil and gas potential of Wyoming's mountain front thrusts. Reprint No. 37, which is available from the Wyoming Geological Survey, Box 3008, University Station, Laramie, Wyoming 82071, details the history of prospecting beneath the precambrian foreland thrust plates in the Rocky Mountains.

General Hydrocarbons, Inc. has announced completion of a gas discovery in Park County, Wyoming, 2½ miles from the Heart Mountain field. The well (sec. 4, T.54N., R.102W.) was tested at 2.3 million cubic feet of gas from Lower Cretaceous Muddy Sandstone and 1.6 million cubic feet from Upper Cretaceous Frontier Formation.

Celsius Energy recently completed a high-volume gas producer in Butcher Knife Springs field on the southern end of the Moxa Arch in southwestern Wyoming. The well (sec. 1, T.14N., R.113W.) flowed 6.5 million cubic feet of gas and 120 barrels of condensate from the Lower Cretaceous Dakota Sandstone.

Exxon may have found a market for carbon dioxide from its proposed Riley Ridge gas processing plant. Chevron is interested in using the CO_2 for enhanced oil recovery operations in the Rangely field in northern Colorado. The gas, which will be produced from the deep (greater than 14,000 feet) Mississippian Madison Limestone reservoir in the Riley Ridge area, contains approximately 70 percent carbon dioxide. Two other companies, Mobil and Shell, are competing with Exxon for the Chevron contract, but it appears Exxon may have the inside track. Estimates of the huge CO_2 reserves in the Riley Ridge Project are 13.4 trillion cubic feet.

Alan J. VerPloeg, Petroleum Geologist, Wyoming Geological Survey

URANIUM AND INDUSTRIAL MINERALS UPDATE

Uranium

Layoffs continue at Wyoming's uranium mines and mills. Pathfinder Mines (COGEMA) laid off 14 employees at its Shirley Basin operations in March. Even though two of the five remaining uranium mines in Wyoming are in the Shirley Basin, the effects of reduced production and associated mine layoffs have also forced the closing of local stores and reduced the number of teachers employed in the towns of Shirley Basin and Medicine Bow.

The spot market price of uranium dropped to $17.00 in April and rebounded to $17.75 in May. This is still less than half of the 1979 price. Essentially no uranium is being purchased domestically on the spot market.

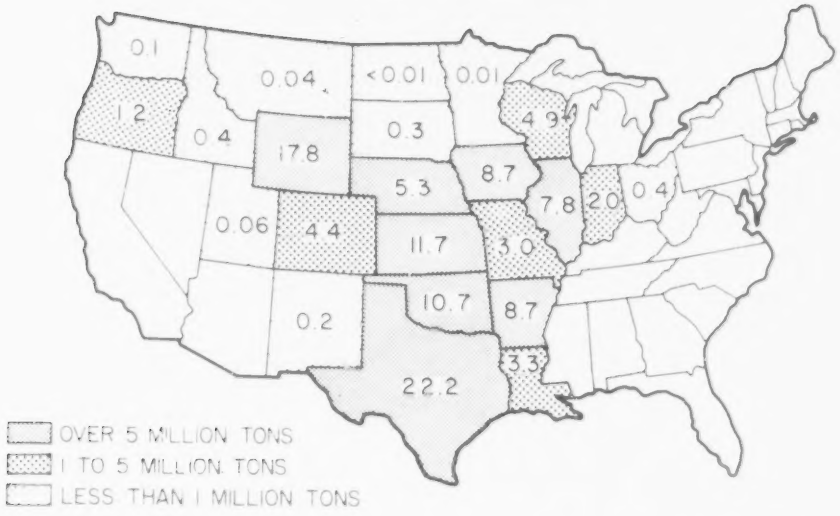
Nevertheless, nuclear power's share of the world's energy production grew from 8 percent to about 10 percent in 1983. Nuclear plants outside of the U.S. continued to produce electricity at lower cost than other methods of electrical generation. France achieved a level of over 50 percent of its electricity produced from nuclear power. In the U.S., nuclear power slightly increased its share of total electricity production to nearly 15 percent.

Continued growth of nuclear power has enabled growth in world uranium production. However, because domestic power producers have large stockpiles of uranium, reduced production from Wyoming and other U.S. mines is foreseen for the near future.

Trona

According to figures recently released by the Wyoming State Inspector of Mines, Wyoming's 1983 trona production was 11.6 million tons, a 5.8 percent increase over 1982. Nevertheless, employment in the trona industry decreased by

DISTRIBUTION OF WYOMING COAL, 1983
(IN MILLIONS OF TONS)



NOTE: Total production was 112.2 MT; 0.1 MT was not reported because individual deliveries were too small to report

Adapted from McNair, 1984, Wyoming Geological Survey, 1984

12.8 percent from the end of 1982 to the end of 1983. The sale price of soda ash (refined trona) also decreased, from a high of $92/short ton in 1982 to a low of $69/short ton in 1983.

Increased production is still forecast for the trona industry, due to increased exports and increases in domestic uses other than bottle glass.

Other Industrial Minerals

Bentonite production continues to increase after a disastrous year in 1983, in which production fell to approximately 1.7 million tons, or almost 1 million tons less than 1982. Employment in the bentonite industry also fell about 30 percent in 1983.

Limestone, gypsum, and sand and gravel production is increasing throughout Wyoming as construction of all types increases seasonally.

Ray E. Harris, Uranium and Industrial Minerals Geologist, Wyoming Geological Survey

COAL UPDATE

Based on statistics for 1983, Wyoming coal is now used in 23 states. Texas is the largest consumer of Wyoming coal with 22.2 million tons, followed by Wyoming with 17.8 million tons. These two states plus Kansas and Oklahoma used over half the coal produced in Wyoming; nearly 80 percent of the state's coal production went to only seven different states.

Additional information on the usage and transportation of the 112.2 million tons of coal mined in Wyoming in 1983 reveals that over 97 percent of the coal was used by electric utility companies for power generation and that nearly 90 percent of the coal was shipped by rail. Two million tons of Wyoming coal were used in-state by other important mineral-related industries, including the trona, bentonite, and cement industries. Some Wyoming coal was also used to make formcoke. FMC Corporation's formcoke plant in Lincoln County has a patented process for

BEST AVAILABLE COPY

converting noncoking coal to formcoke.

Two major coal supply contracts were recently signed with Powder River Basin mines. Mobile Coal Producing, Inc. completed negotiations with Grand River Dam Authority to supply 0.9 to 1.5 million tons of coal per year from the Caballo Rojo Mine. This 20-year to 25-year contract will supply the 520-megawatt GRDA No. 2 unit in Oklahoma. The plant, which is designed to burn a mixture of Wyoming and Oklahoma coal, is now under construction, with completion set for 1986. Anaconda Minerals Company (Arco), which operates the Black Thunder Mine, was selected to supply a 20-year contract for 2.1 million to 2.5 million tons of coal per year to Kansas City Power and Light Company's Iatan No. 1 plant in Weston, Missouri.

In other market developments, the Union Pacific and the Chicago & North Western railroad companies recently signed a transportation contract with Wisconsin Public Service Corporation to carry 0.8 million tons of coal from the Powder River Basin to Wasau, Illinois. This is the second major transportation contract signed by the two railroad companies, which are currently constructing a new rail line in southeastern Wyoming. The new line wil compete with Burlington Northern for coal transportation out of the Powder River Basin. Wisconsin Public Service also renegotiated a contract with Burlington Northern that is expected to lower the utility's transporation costs.

Nebraska Public Power District terminated a 0.2 million ton per year contract with Arch Mineral, which operates a strip mine in the Hanna Basin. Part of the coal under this contract may te replaced by a new contract with Rosebud Coal Sales in the Hanna Basin. Omaha Public Power District has renegotiated a coal supply contract with Exxon (Carter Mining Company's Caballo and Rawhide mines) that resulted in a drop in FOB mine price from $8.25/ton to $5.75/ton. The utility expects to save about $14 million over the next three years by this renegotiation.

Energy Transportation System, Inc. (ETSI), the coal slurry pipeline company, continues to make news. The company recently submitted the low bid for coal transportation from Sunedco's Cordero Mine in the Powder River Basin to San Antonio Public Service Board's Deely Plant in Texas. ETSI's bid, which included 25 megawatts of power generated at the dewatering complex in San Antonio, was less than the two competing railroads' bids and would be ETSI's first confirmed contract. However, the utility has not committed itself to a contract yet, pending an appeal the utility has with the Interstate Commerce Commission against Burlington Northern. If the utility is successful in lowering its current rail rates, it will not complete the deal with ETSI. The electric utility is also considering other risks with the ETSI project, including the pending litigation for water rights, an incomplete right-of-way, and ETSI's lack of other transportation contracts. At the present time, ETSI is still negotiating with other utilities in Texas for additional long-term contracts.

Also affecting ETSI's project are the activities of two of the companies that are partners in the pipeline venture. KN Energy, Inc. is selling half of its 20 percent interest in the pipeline, and Inter-North, a 29.5 percent partner, will decide this summer whether or not to continue its support of the project.

Richard W. Jones, Coal Geologist, Wyoming Geological Survey

METAL AND PRECIOUS STONES UPDATE

Late spring snows will undoubtedly delay the field activities of many exploration companies this summer. Access to the moutainous areas of the state, in particular, is expected to be several weeks later than other years.

A number of exploration groups and consultants have announced plans to examine the South Pass greenstone belt for gold and tungsten. Some interest has also been expressed in the recently closed U.S. Steel Corporation Atlantic City iron ore mine. The mine reportedly has 10 years' worth of iron ore reserves. The steel producer cited excessive production costs as its reason for closure. Historically, the South Pass greenstone belt has been Wyoming's most prolific gold and iron ore producer, with an estimated 325,000 ounces of gold and more than 90 million tons of iron ore produced from the Archean Belt (Hausel, 1980; Hausel and Harris, 1983). All of the iron ore has been produced from iron-formation along the northwestern edge of the belt, and the gold was mined from strike veins and shear zones adjacent to metagabbros, and from related placer deposits.

The Geological Survey of Wyoming is presently reexamining the South Pass greenstone belt. Reconnaissance field work late last fall led to the mapping of three historic underground gold mines (Hausel, 1983a; 1983b; 1983c), and to the sampling of a gold vein and adjacent wall rock for geochemical and alteration studies (Hausel, 1983d). As time permits this summer and fall, Wyoming Geological Survey geologists will complete geological maps of the Lewiston Lakes and Radium Springs 7½-minute quadrangles, and will remap the Louis Lake, South Pass City, Atlantic City, and Miners Delight quadrangles that were mapped by the U.S. Geological Survey in 1973. The goals of the project are to prepare a map of the entire supracrustal belt, to summarize its mineral resources, and to examine the geochemistry of its gold occurrences.

At the present time, a number of small placer operations are producing some gold in the district, and some limited underground activity has been reported at the Carissa and Mary Ellen mines.

Kerr-McGee and Timberline Minerals are exploring the Bradley Peak area of the Seminoe Mountains greenstone belt. Gold was discovered in quartz veins and iron-formation by the Geological Survey of Wyoming in 1981 (Hausel and Harris, 1983). Last year, Timberline Minerals continued drilling on its property at Bradley Peak, until deep snows shut down operations. Timberline is expected to resume drilling as soon as Bradley Peak is accessible.

Some gold activity is anticipated for the historic Tin Cup Mining District and in the nearby Rattlesnake Hills of the Granite Mountains near Jeffrey City. Some interesting gold assays have been reported for this region (Hausel and Jones, 1982a).

The Elmers Rock greenstone belt in the central Laramie Range (Graff and others, 1982) has had some recent reports of rich gold placers on Bluegrass Creek. These reports should result in some exploration activity in that region.

The Copper Mountain supracrustal belt of the Owl Creek Mountains north of Shoshoni and four underground mines have been mapped by the Geological Survey of Wyoming. The maps, petrographic and geologic studies, and chemical assays are presently being complied as an economic geology report. As it has for many years, this region will receive exploration activity by mining companies again this summer. Not only does the region have uranium and petroleum potential, but it also has potential for low-grade copper and silver, and stratiform

gold and tungsten. The accessible workings of the historic Depass Mine were mapped in 1983, and indications are that the mine was developed into a 50-foot-wide mafic dike that carries ore-grade copper with some gold and silver. The extent of the mineralized dike is not known because it disappears to the northeast under Cambrian sediments and was not tested below a depth of 810 feet.

Along strike, the supracrustal belt also contains more than 10 miles of oxide-facies iron formation that in places contains disseminated sulfides. Some adjacent metacherts also contain disseminated sulfides, as well as copper oxide, silicate, and carbonate stains that assay in both copper and gold. These relationships and the presence of tungsten-bearing quartzofeldspathic gneisses indicate potential for low-grade stratiform occurrences (Hausel and Graff, 1983).

The Hartville Uplift near Guernsey, Wyoming, contains a thick eugeoclinal metasedimentary succession of rocks of Archean age (greater than 2.5 billion years old). During the upcoming field season, companies will search for gold, principally in paleoplacers and in stratiform deposits. Some of this activity will probably concentrate on fluvial sandstones and conglomerates of Cambrian (?) age, and on exhalite deposits (Hausel, 1983e).

Some gold prospecting and exploration is anticipated in the Clarks Fork placer area of the northern Wind River Range, at an undisclosed location in the Bighorn Mountains, in the Bear Lodge and Mineral Hills districts of the Black Hills, and in the historic Platte District of the Medicine Bow Mountains. Limited paleoplacer gold exploration is also planned for the Late Archean to Early Proterozoic metaconglomerates in the northern Medicine Bow and Sierra Madre Mountains, and in fluvial rocks of Cambrian age along flanks of many of the state's mountains.

This summer, gold production is anticipated from Goldwest Corporation's Cottonwood Creek placer mine in Teton County. The proposed operation as planned will process up to 500 cubic yards of alluvial gravel per day using washers and vibrator separators. Life expectancy for the mine is 10 years.

As in past years, a few hobby and family placer gold operations will probably be working in the Keystone-Douglas Creek District of the Medicine Bow Mountains this summer and fall. Every year, at least several ounces (or more) of gold are mined in this region, ranging from dust-size to nuggets up to ¼-inch to ½-inch in length. A minor amount of platinum is also produced. Two areas in this district that have received some interest recently are the New Rambler Mine and the Keystone-Florence trend. The New Rambler Mine produced rich amounts of copper with associated gold and platinoids. Hausel and Jones (1982b) examined and discussed the possibility of heap leaching some of the mineralized rock.

The Keystone-Florence trend is a northwest mineralized shear and vein system in the Keystone Quartz Diorite. The Keystone Mine along the western extent of the trend produced an estimated 5,000 to 6,000 ounces of gold and was reported to have 100,000 tons of ore reserves, in place, when mining operations terminated in 1893 (Curry, 1965; Hausel, 1980). The ore reportedly averaged 1.2 ounces of gold per ton (Curry, 1965). The Florence Mine, in the eastern part of the trend, contained some apparently sporadic occurrences of very rich ore. Although historic reports are sketchy, mining operations may have terminated because of difficulties associated with mine flooding and ore treatment problems.

Some companies will conduct exploration activities in the Overthrust Belt of western Wyoming. This region contains red beds mineralized with copper, silver, and zinc (Hausel, 1982), and metalliferous black shales in the Permian Phosphoria Formation. These black shales are of potential interest for disseminated "no seeum" gold and silver. Interesting amounts of gold, silver, zinc, and vanadium have been reported in these rocks (Harris and Hausel, 1984).

Diamond exploration in the Colorado-Wyoming kimberlite province is continuing. Both Superior Minerals and Cominco American Incorporated are exploring in undisclosed regions.

The Geological Survey of Wyoming is continuing with a stream sediment sampling project in the central and southern Laramie Range. A new district, which contains nearly two dozen anomalous samples, was identified in the Pole Mountain-Happy Jack area. This follows the discovery of the Sheep Rock District in 1980-1981 (Hausel and others,1981).

W. Dan Hausel, Deputy Director, Wyoming Geological Survey

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Summer Agricultural Outlook

Mother Nature has played a cruel joke on Wyoming livestock producers this past spring. Following a prolonged winter, a severe late April snowstorm resulted in the deaths of thousands of sheep and cattle in northeast Wyoming. The storm hit at the worst possible time for sheep producers. Particularly vulnerable were newly sheared sheep and newborn lambs. Some producers lost 60 percent or more of their total inventory. Cattle producers also suffered severe losses, as young calves were separated from their mothers and large numbers of calves and cows perished in the storm. Areas in south-central Wyoming faced severe flood conditions. Heavy snow runoff and a broken dam caused severe flooding and destruction of irrigation canals, ditches, and headgates in southern Carbon County.

The overall agricultural outlook for Wyoming livestock producers is less than rosy, despite the potential for higher sheep and cattle prices as we move into the fall. Thousands of acres of grass will go unused since the reduction in livestock means animals within reasonable transportation distances are not available to harvest this resource. Many ranchers will have cash flow problems in 1984. Grazing land values declined an estimated 11 percent from 1982 to 1983, and this trend will continue into 1984. The declining land values will make it more difficult for producers to obtain credit in the coming year.

Agricultural producers will be keeping an eye on weather developments in the Midwest as we move through the summer. Corn belt states suffered a severe drought in 1983, and thus carry-over supplies of corn and soybean inventories compared to normal usages are at historical lows. With normal weather in the summer of 1984, feed grain stocks will be rebuilt to workable levels. Analysts are expecting an 8.4 billion to 8.6 billion bushel corn crop. Between now and fall harvest, however, spot shortages of corn are expected to develop in late summer. Livestock producers in the eastern corn belt are already beginning to scramble for available supplies.

Livestock producers should be looking at higher prices this fall, compared to year-ago levels, if the feed grain crop materializes. Last year's drought had a severe downward impact on feeder cattle prices. Lower supplies of feeder cattle and a large feed grain crop should push feeder cattle prices 20 percent to 25 percent higher in September 1984, compared to September 1983. Yearling steer prices should average $66-$68 per hundredweight this coming September-October, with steer calf prices in the $70-$74 per hundredweight range.

Price fluctuations for the remainder of the year for all agricultural commodities are likely to be affected primarily by weather and political impacts, both in the U.S. and worldwide. Demand considerations are projected to be much more stable than in recent years.

Robert D. Carver, University of Wyoming

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Job Openings Outlook

RESTAURANT MANAGERS

In Wyoming, there is a balance to slight shortage of experienced restaurant managers. The job outlook depends on economic conditions and expansion of the food service industry. Currently, the downswing in the economy has resultec in a decrease in the number of job openings. However, opportunities for employment will increase as new restaurants open. Demand is strongest in Wyoming's larger towns and recreational areas which attract tourists and commercial travelers. Opportunities for beginners may be best with fast-food restaurants, where a high turnover rate occurs as individuals advance.

There are approximately 800 restaurant managers in Wyoming. Beginning salaries for managers who have completed training range from $1,000-$1,500 per month. With experience, earnings range between $2,100-$2,500 per month. Managers may also receive bonuses and meals. Owner-operators may earn more.

Although educational requirements vary, experience in all areas of restaurants is very important. Management jobs are often filled by people who have worked their way up in the organization; however, large restaurants emphasize formal education in addition to experience. A college education in food preparation and management, business administration, marketing, sales, or other related fields is strongly recommended.

Major employers of restaurant managers include restaurants, dining rooms and cafeterias in hotels and motels, department stores, factories, schools, and hospitals.

PHARMACISTS

There is a balance to slight shortage of pharmacists in Wyoming. However, there is a surplus of pharmacists in Laramie, due to low turnover and the availability of students graduating from the University Pharmacy School. Gillette, Kemmerer, and Rock Springs are experiencing shortages of pharmacists. High turnover in these towns makes opportunities better for job placement. Most pharmacists practice in populcus areas where the majority of health care professions and facilities tend to concentrate. Sources indicate moderate demand for "relief" pharmacists to substitute for those who work full-time.

Nationally, the job outlook for pharmacists is favorable due to low enrollment in colleges of pharmacy resulting in fewer graduates entering the job market. Employment for pharmacists is dependent on replacement of those who leave the occupation, establishment of new pharmacies, expansion of health care and health insurance programs, and continued demand for pharmaceutical services.

Currently, there are 425 pharmacists in Wyoming; 384 are practicing, while 41 are residing in the state but not practicing.

Entry wages for pharmacists range between $15,000-$20,000 per year. Pharmacists with experience earn between $20,000-$32,000 per year. Pharmacists who own or are partners in a pharmacy earn more. Also, the availability of large amounts of overtime may add significantly to the base salary.

Becoming a pharmacist requires graduation from a 5-year accredited pharmacy program, as well as licensing by the State Board of Pharmacy.

TRAVEL AGENTS

There is a slight shortage of qualified travel agents in most areas of Wyoming. Employment opportunities for travel agents depend on the availability of training programs, availability of low-cost travel service, the number of trained workers moving into the state, increased automation, and increased leisure time. Studies predict a steady demand for travel agents; however, competition is keen due to extremely low turnover rates and the popularity of jobs in the travel industry.

This is a small occupation in Wyoming, with less than 50 travel agents. Most are employed in populated areas; however, smaller towns may find the need for travel agencies due to increased leisure time and consumer demand for travel services.

Salaries depend on the agency size, sales ability, and experience. Wages after training are approximately $850 per month. Wages with experience are between $850-$1,020 per month. Some travel agents, depending on employer, work on a commission basis. Commissions range between 10 percent and 20 percent.

One or two years of related college work and or completion of a travel training program are preferred by employers. This trend of requiring increased education is limiting entrance into the field by secretaries, receptionists, and clerks, as was often the case previously. This trend is also prompting fewer employers to provide on-the-job training.

For additional information, contact Karen P. Scott, Wyoming Career Information System, Student Educational Opportunity, P.O. Box 3808, University Station, Laramie, Wyoming, 82071, 1-307-766-6189.

Karen P. Scott, Wyoming Career Information System

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DAFC Devises New Economic Index

In an attempt to profile the course of the Wyoming economy, the Wyoming Department of Administration and Fiscal Control (DAFC) recently announced the development of the Wyoming Coincident Indicator Index. In one application, the index allowed state researchers to establish that economic activity in the state had reached a low point in July 1983 and that steady improvement occurred thereafter--possibly signaling that the recession in Wyoming had ended.

Steve Sommers, DAFC research economist, says the general goal initially was to develop a leading indicator index as a means of projecting revenue flows to the state General Fund. It became clear, however, that means for simply profiling peaks and troughs in business activity would have to be developed before the formulation of a leading indicator index would be possible. The result was the Wyoming Coincident Indicator Index.

At the national level, peaks and troughs in business activity are computed by the National Bureau of Economic Research (NBER), while the national economic coincident indicators index is computed by the federal Bureau of Economic Analysis (BEA).

The variables used in computing the Wyoming coincident index are similar to those used by the BEA in computing the national index. The Wyoming index is a composite index which employs four variables: Wyoming state total sales and use taxes in 1972 dollars; Wyoming state total wages paid in 1972 dollars; Wyoming state total employment; and an industry index composed of one variable from each of Wyoming's three main industries. The three industry variables which make up the industry index are prices received by Wyoming farmers and ranchers for all commodities, Wyoming drilling rig count, and Wyoming motor fuel gallonage sales. The three industry variables are weighted equally in creating the industry index variable. In turn, the resultant industry index variable is weighted equally with the other three main variables, and the four taken together are used to compute the coincident index.

Sommers says DAFC tested a number of time series variables in developing the index "to see which of them seem to be moving in the same direction at the same time. These four came out the best."

Another reason the four were selected, according to Sommers, was their general correspondence with the national coincident indicators index. Where the national index uses employees on non-agricultural payrolls, Wyoming uses total employment. Where BEA uses personal income less transfers in 1972 dollars, Wyoming uses total wages paid in 1972 dollars. Where BEA uses manufacturing and trade sales in 1972 dollars, Wyoming substituted total sales and use tax data. And where BEA uses an index of industrial production based on 235 different time series, Wyoming uses an industry index variable which reflects activity in the state's three major economic sectors.

Due to a lag in the availability of data, Sommers says the Wyoming coincident index will be reported on a quarterly basis with a lag of three months in the data reported. (For sample plot of the new index, see the following page.)

S.T. Mast, IER

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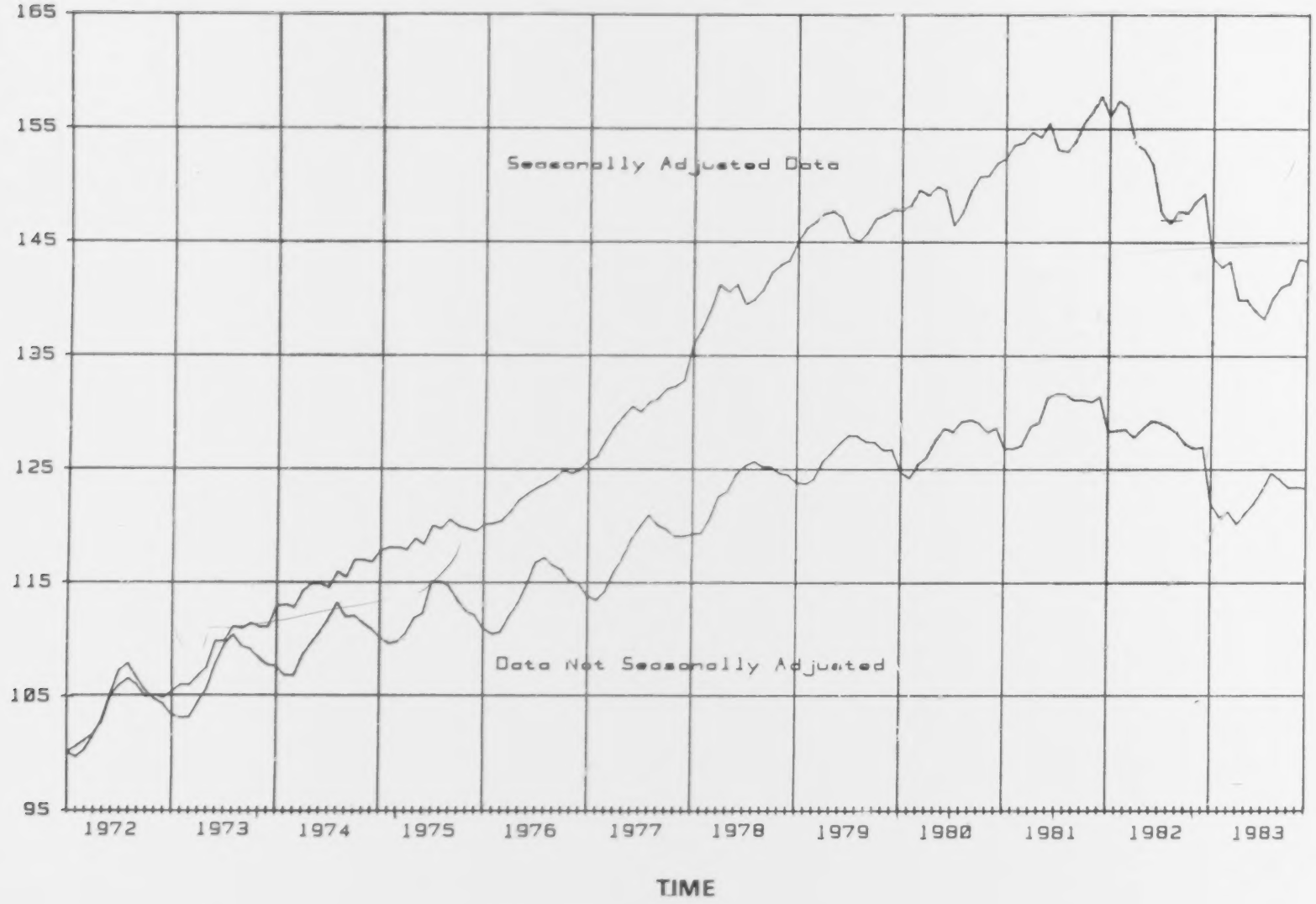
WYOMING COINCIDENT INDICATOR INDEX

March 30, 1984



Shaded Areas Represent U.S. Recessionary Periods.

INDUSTRY PROFILE

A Wyoming Coal Review

INTRODUCTION

Coal and Wyoming have grown together. The history of coal traces a progression of economic and social development that predates statehood, from the mines of southern Wyoming founded to fuel the steam locomotives of the Transcontinental Railroad, to the vast mining complexes of the Powder River Basin constructed to serve the coal-fired appetites of modern-day public utility plants.

The purpose of this article is to provide some general background on coal mining in Wyoming. First, an overview of state coal development is provided. This is followed by discussions of development within the major coal regions of the state, principally, the mining regions of southern Wyoming and the Powder River Basin.

OVERVIEW

The existence of coal in Wyoming has been known since the days of the mountain men. Early fur trappers and Indians purportedly used small quantities of coal for fires. The first written record of coal, however, appears in the August 19, 1843, journal entry of John C. Fremont, made during a geographical survey expedition in the Cumberland-Kemmerer coal field of western Wyoming.

"Coal made its appearance occasionally in the hills during the afternoon," Fremont wrote, "and was displayed in the rabbit burrows in a kind of gap (Cumberland Gap), through which we passed over some hills and descended to make our encampment..."

Nine years later, on September 4, 1852, Captain Howard Stansbury of the U.S. Topographical Engineers wrote about coal located near the present site of Rock Springs. In his notes, Stansbury described good quality coal in beds 10 feet thick protruding from hills on the south side of Bitter Creek--the site where Blairtown, the "ancestor of Rock Springs," later would be located.

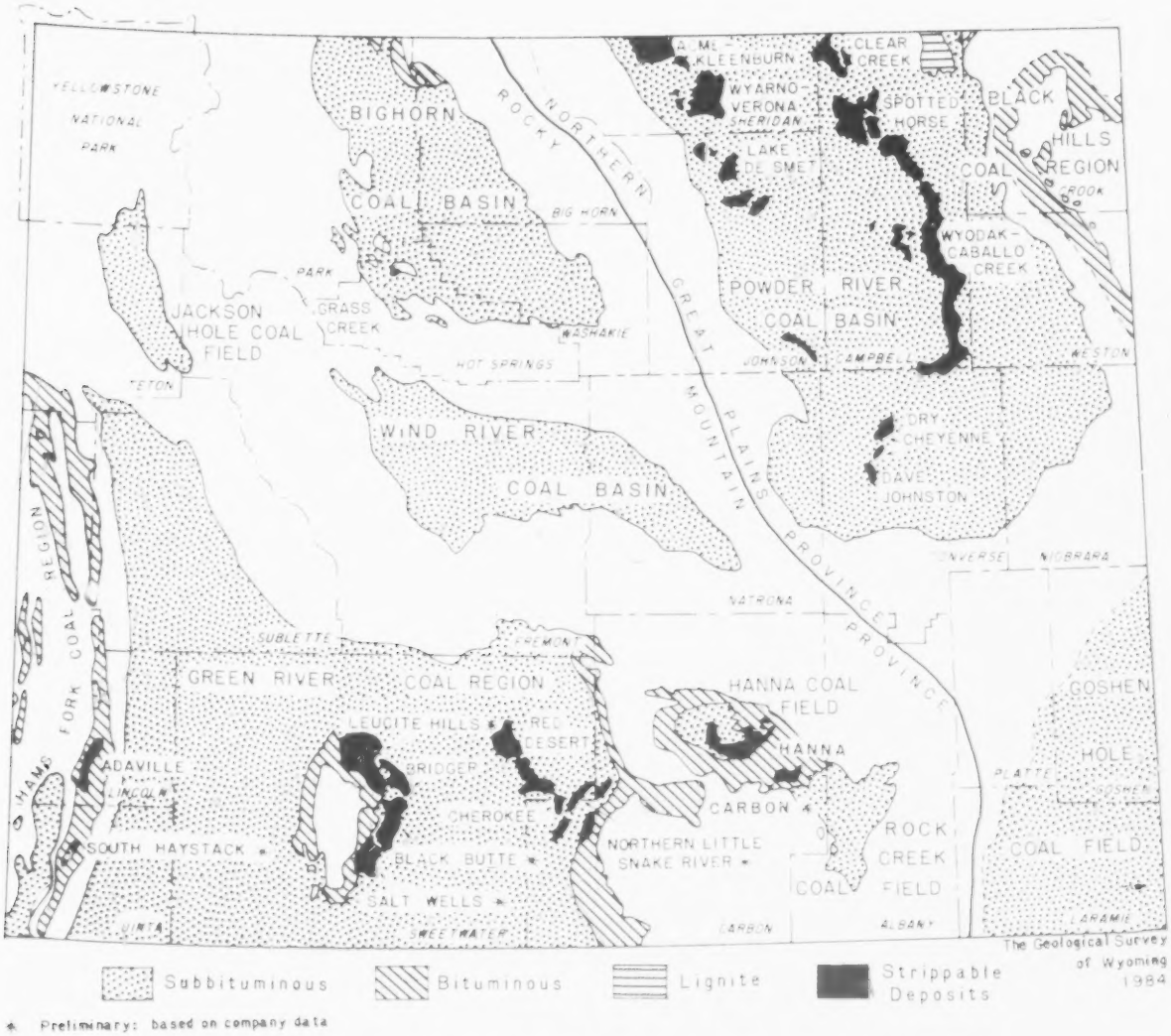
The earliest record of state coal production appears in U.S. Geological Survey reports for 1865, when 800 tons reportedly were mined. One early development of coal resources occurred near the Rock Creek crossing in Carbon County. In 1865, the Denver & Salt Lake Stage Company extracted coal from a site known as "Coal Bank Hollow" (located six miles east of the crossing) for blacksmithing purposes and for heating fuel. It is fair to assume, however, that the bulk of this early production was for garrison use by the U.S. Army.

Major development of Wyoming's coal resources awaited the coming of the railroad. In 1866 and 1867, coal production began to climb, to 2,500 tons and 5,000 tons respectively, as coal was stockpiled in advance of the railroad (which entered Wyoming in 1868). Commercial coal mining was exclusive to south-central and western Wyoming until 1887, along the route of the Union Pacific Railroad. The first of the Union Pacific mines was opened at Carbon in 1868, situated in the Hanna coal field of Carbon County. Like most of the early mines, the Carbon mine supplied coal for the railroad's steam locomotives. In 1868, the Union Pacific mined 6,925 tons of coal from its mines at Carbon and at Rock Springs, the entire tonnage mined in the state, according to the U.S. Geological Survey.

By 1887, mines opened elsewhere in the state. The first was a commercial mine opened near Glenrock. In 1888, mines near Douglas and Newcastle also were opened. By 1893, all the major coal-producing regions of the state were in production, with the addition of the first mine in Sheridan County.

State coal production during the first major cycle of coal development peaked in 1945 at 9.8 million tons. From that point, coal production steadily declined. For 80 years, the railroads had provided the major market for Wyoming coal. During the 1950's, however, the railroads converted their steam locomotives to diesel electric, thus eliminating the major market. By 1958, state coal production had dropped to just 1.6 million tons.

What might be considered the second major historic cycle of coal development began during the late 1960's, as power plant demand for inexpensive coal increased. With passage of the Clean Air Act of 1970, the boom for western coals began in earnest. Due to their low sulphur contents (typically between 0.5 percent and 1.5 percent sulphur, compared to 5 percent to 9 percent sulphur for eastern coals), many western coals were in high demand. The ability to burn Wyoming coals without installing expensive scrubbers, coupled with low mining costs, more than offset concerns about the low



* Preliminary: based on company data

COAL- BEARING REGIONS OF WYOMING

heat values and the high moisture contents associated with Wyoming coals. This was especially true of coals found throughout the Powder River Basin, a region not generally developed during the first cycle of coal development.

By 1972, Wyoming coal production reached 10.9[illegible] million tons, exceeding the previous production record set in 1945. In 1973, the Arab Oil Embargo focused even greater attention on domestic coal resources. Annual production records for Wyoming coal became yearly events, reaching 94 million tons by 1980.

Until 1954, coal production in Wyoming was dominated by underground mining. Since then, strip mining has become the predominant means of coal extraction.

At the same time, the geographic focus has shifted from southern Wyoming to the Powder River Basin, especially Campbell County. According to data compiled by the State Inspector of Mines, 83.6 percent of total state coal production during 1983 was concentrated in the Powder River Basin, 78.6 percent in Campbell County alone.

COAL DEVELOPMENT IN SOUTHWESTERN WYOMING

Like most early coal development in Wyoming, the mines of the southwestern portion of the state came into existence as a result of the Transcontinental Railroad. Coal mines were opened in the Rock Springs area in 1868. In 1869, the Wyoming Mine in the Almy District was

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opened approximately three miles north of Evanston and produced 1,967 tons of coal. Fires and explosions ultimately resulted in the demise of the Almy District in 1900.

In 1882, the Twin Creeks Mine was opened north of Evanston. However, when it was found that the coal disintegrated with even minimum handling, the mining operations were closed.

Additional mines were opened at the turn of the century as railroad demand continued to increase. The Cumberland camp, located in Uinta County, was opened in 1901. It produced over 14 million tons of coal, before closing in 1930. In 1911, coal production commenced at Reliance, located seven miles north of Rock Springs. From 1911 until it was closed in 1954, the Reliance area produced over 24 million tons of coal. The Superior mining camp was opened in 1906 and produced over 42 million tons of coal before being closed in 1962.

Early coal development in adjacent Lincoln County resulted from the activities of the Kemmerer Coal Company and Wyoming pioneer Patrick J. Quealy. In conjunction with New York financier Mahlon S. Kemmerer, Quealy organized the Kemmerer Coal Company in 1897. As a result of company activities, a number of coal camps sprang to life, among them Frontier, Elkol, Sublet, and Quealy. The town of Kemmerer was founded amid the upsurge in 1897. In addition to the formally named camps, many unnamed camps also sprang up in association with numerous small "truck" mines.

The Kemmerer Coal Company eventually supplied coal to 13 western states. The Union Pacific Coal Company, on the other hand, sold its coal only to the Union Pacific Railroad Company. One reason for the lack of market penetration by Union Pacific coal into other markets was the so-called "commodities clause" in the Hepburn Act of 1906, which prohibited common carriers from hauling goods that they themselves produced, except for their own use.

Employment in the southwestern Wyoming coal industry grew from 4,207 in 1908 to 5,093 in 1913. Men of many nationalities worked in the early mines. Labor organizations also took root. The earliest such organization apparently was the Knights of Labor, which sponsored locals at Rock Springs, Almy, and Carbon during the 1870's. While the union did not establish wage scales or working agreements with the coal companies, it did establish a policy with the Union Pacific whereby all grievances would be taken up with representatives from the Knights of Labor.

The first strike for which adequate documentation exists occurred in Rock Springs. During the winter of 1875, miners refused a request to increase coal production. Within 60 days, the Union Pacific added 300 Chinese laborers to the work force. In protest, many miners went on strike and were discharged. Animosity between white miners and their Chinese counterparts festered for the next 10 years, culminating in the infamous "Chinese Massacre" of September 2, 1885, at Rock Springs. At least 25 Chinese persons were killed before order could be restored by federal troops sent from Ft. Steele. Resentment against the Chinese at Almy was so great that the Union Pacific removed Chinese workers from the mines. However, some Chinese did continue in the employment of the Union Pacific until 1927, when the Union Pacific sent many back to China.

The years during World War I saw a boom in coal production in southwestern Wyoming, as mines operated at full capacity to meet wartime demand. Labor organizations also made some significant strides during this time. In agreements of September 1, 1916 and October 3, 1917, the United Mine Workers (which first organized in southern Wyoming in 1907) and the Southern Wyoming Coal Operators entered agreements that established a scale of day wages and a system of job classification. The day wage established in 1916 was reputedly among the highest in the nation.

With the exception of a depression period during 1920-1921, the national economy generally prospered until the Crash of 1929. However, Wyoming did not share in the general prosperity, since agriculture and the coal industry remained depressed. The general economic climate worsened even further with the Great Depression of the 1930's.

State coal production continued to decline, hitting a low ebb during the 1930's. Some mines of the Kemmerer Coal Company were closed when reserves were exhausted. Many southwestern Wyoming mines were beginning to feel pressures from competing fuels, oil and gas in particular. Gas production in Wyoming increased from just 4 mcf in 1918 to 44 mcf in 1927. During the same period, oil production increased from 13 million barrels to 21 million barrels. Coal production would not rise significantly again until World War II.

Total employment in the southwestern Wyoming mines reached its zenith in 1922 at 6,139 workers. By 1934, total employment skidded to just 2,663 workers. The Depression years did, however, see positive gains in productivity as the mines became more highly mechanized. The productivity gains accomplished during the 1930's enabled the southwestern mines to help meet the boom in coal demand that resulted with the advent of World War II.

During World War II, most of the mines of southwestern Wyoming operated at full capacity. Production of the mines rose from 4.3 million tons in 1940 to 6.7 million tons by 1945. In an attempt to help satisfy the demand, the Union Pacific Coal Company opened the Stansbury mining camp in 1943. Located approximately 15 miles north of Rock Springs, the area produced 9.1 million tons of coal before it was closed in 1957.

During the post-World War II years, demand for bituminous coal remained relatively strong. By the 1950's, however, the fortunes of Wyoming coal sank. Two reasons can be cited for the decline. First, as noted earlier, the Union Pacific Railroad, the principal user of southwestern Wyoming coal, converted its locomotives from steam to diesel electric. And second, other fuels, such as oil, gas, and uranium, began capturing larger shares of the total fuels market. According to one 1965 U.S. Bureau of Mines publication, bituminous coal's share of the industrial energy market dropped from 70 percent in 1918, to 52 percent in 1942, and to just 28 percent by 1958.

Table 1: Historical Wyoming Coal Production, Employment, and Productivity 1865-1983.

Year	Production	Total Employees	Tons Per Employee	Year	Production	Total Employees	Tons Per Employee
1865	800	-	-	1925	6,557,576	6,364	1,030
1866	2,500	-	-	1926	6,495,815	5,912	1,099
1867	5,000	-	-	1927	6,736,561	5,639	1,195
1868	6,925	-	-	1928	6,553,174	4,768	1,374
1869	49,382	-	-	1929	6,699,779	5,081	1,319
1870	105,295	-	-	1930	6,070,769	4,868	1,247
1871	147,328	-	-	1931	5,000,366	4,675	1,070
1872	221,745	-	-	1932	4,168,419	4,236	984
1873	259,700	-	-	1933	4,004,602	3,792	1,056
1874	219,061	-	-	1934	4,376,791	3,778	1,158
1875	300,808	-	-	1935	5,165,289	4,090	1,263
1876	334,550	-	-	1936	5,791,020	4,751	1,219
1877	342,853	-	-	1937	5,950,230	4,996	1,191
1878	333,200	-	-	1938	5,219,054	4,868	1,072
1879	400,991	-	-	1939	5,411,018	4,287	1,262
1880	527,811	-	-	1940	5,850,702	4,321	1,354
1881	628,181	-	-	1941	6,670,808	4,506	1,480
1882	707,764	-	-	1942	8,154,861	4,776	1,707
1883	779,669	-	-	1943	9,237,729	4,675	1,976
1884	902,620	-	-	1944	9,559,593	4,584	2,085
1885	807,328	-	-	1945	9,836,798	4,814	2,043
1886	829,355	-	-	1946	7,616,681	4,500	1,693
1887	1,170,318	-	-	1947	8,054,751	4,348	1,852
1888	1,481,540	2,459	602	1948	6,408,302	4,212	1,521
1889	1,388,276	2,675	519	1949	5,972,640	3,814	1,566
1890	1,870,366	3,272	572	1950	6,341,899	3,598	1,763
1891	2,327,841	3,411	682	1951	6,288,157	3,187	1,973
1892	2,503,839	3,133	799	1952	6,106,949	2,903	2,104
1893	2,439,311	3,376	722	1953	5,243,715	2,788	1,881
1894	2,417,463	3,032	797	1954	2,833,353	1,532	1,849
1895	2,246,911	3,449	651	1955	2,921,563	979	2,984
1896	2,229,624	2,949	756	1956	2,555,452	1,016	2,515
1897	2,597,866	3,137	828	1957	2,118,366	634	3,341
1898	2,863,812	3,475	824	1958	1,631,234	587	2,779
1899	3,837,392	4,697	817	1959	1,976,597	479	4,127
1900	4,014,602	5,332	753	1960	2,004,147	439	3,565
1901	4,485,374	5,151	871	1961	2,520,258	446	5,651
1902	4,429,491	5,250	844	1962	2,574,560	449	5,774
1903	4,635,293	4,993	928	1963	3,126,942	371	8,428
1904	5,178,556	5,660	915	1964	3,103,798	380	8,168
1905	5,602,021	5,977	937	1965	3,257,314	327	9,961
1906	6,133,994	5,934	1,034	1966	3,670,505	356	10,310
1907	6,252,990	6,645	941	1967	3,588,649	332	10,809
1908	5,489,902	6,915	794	1968	3,694,213	352	10,494
1909	6,419,567	8,027	800	1969	4,605,995	448	10,281
1910	7,380,022	8,096	912	1970	7,380,930	621	11,886
1911	6,665,355	7,220	915	1971	8,007,765	727	11,015
1912	7,341,141	8,154	900	1972	10,920,468	943	11,581
1913	7,095,652	7,784	912	1973	14,840,657	1,179	12,588
1914	7,221,772	8,463	853	1974	20,649,754	1,411	14,635
1915	6,268,990	7,379	850	1975	23,784,128	2,038	11,670
1916	7,696,344	6,897	1,116	1976	31,085,412	2,511	12,379
1917	8,789,514	7,373	1,192	1977	44,046,842	3,314	13,291
1918	9,417,269	7,723	1,219	1978	58,174,625	3,928	14,810
1919	8,166,008	7,725	1,057	1979	71,445,178	5,265	13,570
1920	9,580,274	7,986	1,200	1980	94,986,433	6,231	15,084
1921	7,276,497	8,037	905	1981	102,695,563	6,015	17,073
1922	5,976,474	9,192	650	1982	107,554,583	5,681	19,003
1923	7,587,676	7,511	1,010	1983	112,187,674	5,401	20,772
1924	6,714,554	7,210	931				

Total recorded coal production from 1865 through 1983 is 1,142,936,383 tons. More than half of the total recorded production was mined in the last seven years.

Source: U.S. Geological Survey data, 1865-1908; Wyoming Inspector of Mines data, 1909-1983.

Reprinted from Wyoming Coal Mining: A Wage and Employment Survey (1984), published by the Wyoming Department of Labor and Statistics.

Table 2: 1983 Wyoming Coal Production by Coal Basin and Mine[1].

Company	Mine Name 1983	Employees 1983	Production 1983
	POWDER RIVER BASIN		
Amax	Belle Ayr (strip)	317	13,825,240
	Eagle Butte (strip)	282	11,030,860
Antelope	Antelope (strip)[2]	11	-
Ash Creek Mining Company	PSU No. 1 (strip)	2	1,018
Big Horn	Big Horn (strip)	212	2,946,680
Carter Mining	Caballo (strip)	142	6,706,928
	Rawhide (strip)	225	8,627,719
Cordero Mining	Cordero (strip)	251	10,024,803
Fort Union	Fort Union (strip)	14	302,032
Glenrock	Dave Johnston (strip)	247	2,684,011
Kerr-McGee	Clovis Point (strip)	129	3,045,202
	Jacob's Ranch (strip)	326	11,847,552
Mobil Coal	Caballo Rojo (strip)	85	1,440,000
North Antelope	North Antelope (strip)	68	64,248
Thunder Basin	Black Thunder (strip)	503	15,193,140
	Coal Creek (strip)	97	1,877,056
Triton/Shell	Buckskin (strip)	93	1,709,958
Wyodak Resources	Wyodak (strip)	67	2,486,000
TOTAL		3,071	93,812,467
	HANNA BASIN		
Arch Mineral	Seminoe No. 1 (strip)	52	494,535
	Seminoe No. 2 (strip)	175	1,456,678
Carbon County	Carbon No. 1 (deep)	282	1,282,700
Energy Development	Rimrock Pits (strip)[3]	73	84,195
Medicine Bow	Medicine Bow (strip)	57	569,786
Rosebud Coal Sales	Rosebud (strip)	128	930,571
TOTAL		767	4,818,465
	GREEN RIVER BASIN		
Black Butte	Black Butte (strip)	557	4,966,000
Bridger	Jim Bridger (strip)	409	4,317,880
Prospect Point	Leucite Hills (strip)	28	187,536
TOTAL		994	9,471,416
	HAMS FORK REGION		
FMC Corporation	Skull Point (strip)	109	957,368
Pittsburg and Midway	Elkol and Sorenson (strip)	368	3,083,067
TOTAL		477	4,040,435
	BIG HORN BASIN		
Northwestern Resource Company	Cross Creek (strip)	4	45,091
TOTAL WYOMING		5,313	112,187,874

[1]Source: Wyoming State Inspector of Mines, preliminary data for 1983.
[2]Under construction.
[3]Mine operated by Resource Exploration and Mining, Inc.; mine was active only in January and February, 1983.

Closures in southwestern Wyoming mines read like a litany of disaster: Winton, closed in 1952; Reliance, closed in 1954; Stansbury, closed in 1957; the last of the Rock Springs-Superior mines, closed in 1962. On December 20, 1962, the Union Pacific Coal Company was dissolved. From the first production in 1868 until its dissolution, the Union Pacific Coal Company or its agents produced a total of 166.7 million tons of coal in southwestern Wyoming.

As with the rest of Wyoming, the resurgence of coal-mining activity in southwestern Wyoming was linked to construction of new coal-fired electric generating plants. In 1960, Utah Power and Light began construction of its Naughton power plant near Kemmerer, drawing upon coals located in nearby fields. In 1970, Idaho Power Company and Pacific Power & Light began construction of the 2-million-kilowatt Jim Bridger plant near Rock Springs.

Coal development also benefited from the development of southwestern Wyoming's vast trona resources. In 1976, the first coal was shipped by FMC Corporation from its Skull Point Mine near Kemmerer for use in boilers at FMC's trona mine and soda ash processing plant at Green River. By 1981, the Skull Point Mine had diversified to serve additional large customers, with production reaching a record 960,000 tons.

Other mines experiencing new life during the boom of the '70's included the rejuvenated Kemmerer Coal Company Elkol and Sorenson mines (later acquired by Pittsburg & Midway Coal Company), and the Black Butte Mine in eastern Sweetwater County, the first major western mine to receive federal approval under the stringent Surface Mining Control and Reclamation Act of 1977.

By the early 1980's, the meteoric rises in coal production began to level off, and finally, to drop at many mines, the result of a severe recession and generally decreased demand for electric power. Perhaps the most graphic illustration is the case of the Jim Bridger Mine in Sweetwater County. By the end of 1983, the Jim Bridger power plant continued to operate at less than one-half capacity because of reduced electricity demand in the Northwest. The stockpile of coal at the adjacent mine had swelled to approximately 2 million tons, prompting some layoffs and reduced working hours. In 1982, the Jim Bridger Mine produced approximately 6.0 million tons of coal; by 1983, production had dropped to approximately 4.3 million tons.

According to coal production projections released by the Wyoming Geological Survey in 1983, no increases in southwestern Wyoming coal production are forecast in the near-term. Production levels similar to those attained during 1981 are not foreseen again until late in the decade.

Southwestern Wyoming coals are located in both the Hams Fork Coal Region of extreme western Wyoming and in the Green River Region, centered mostly in Sweetwater County.

Structurally, the Hams Fork Region is very complex, including many faults and folds. The most important beds, in which current operations of the Elkol, Skull Point, and Sorenson mines are located, are the Adaville No. 1 coal bed and the Adaville coal beds (undifferentiated). The Adaville No. 1 coal bed commonly averages 74 feet to 84 feet in thickness in the Kemmerer Coal District (where it is best developed). With regard to the Adaville coal beds (undifferentiated), Smith et. al. in 1972 estimated the remaining strippable reserve base at over 1 billion tons.

The Green River Coal Region, the state's largest coal-bearing area, encompasses approximately 15,400 square miles. Little is known about the total coal resources of the area. However, some important beds include the Upper and Lower Cherokee coal beds (with an estimated strippable reserve base of 200.9 million tons), the Sourdough-Monument-Tierney coal beds (estimated strippable reserve base of 458.9 million tons), the Lance Formation coal beds (estimated strippable reserve of 268 million tons), the Deadman coal bed (estimated strippable reserve of 250 million tons), and the Almond coal beds (5,650 million tons of coal, with perhaps 5 percent to 10 percent strippable).

COAL DEVELOPMENT IN THE POWDER RIVER BASIN

Coal development occurred later in the Powder River Basin than it did in southern Wyoming since the railroad, the major market for early coal, did not penetrate the area until the 1890's. Some recorded coal mining occurred in the 1880's in Converse, Johnson, and Sheridan counties, and in 1909, some coal development had occurred in Campbell County.

Although documented production began in Sheridan County in 1887, significant production did not occur until 1900. Between 1900-1920, numerous mines sprang up at such places as Monarch, Koni, Dietz, Acme, and Carneyville (Kleenburn).

As in most of Wyoming, many workers in the early Sheridan County mines were recent immigrants, particularly Poles. The hours were long and the miners were usually compensated according to the amount of coal mined. Coal was laboriously loaded on mule-drawn carts for transportation to the surface. Companies normally paid between $.45 and $.75 per ton of coal mined, not including the weight of coal slack removed in the screening process. Since coal slack constituted approximately one-third of the gross weight of the coal brought to the surface, a miner could expect to earn between $2.70 and $4.20 per day.

In 1903, the United Mine Workers of America established its first local at Dietz in Sheridan County and working conditions began to improve. From Sheridan County, the Mine Workers union movement spread to the mines of southern Wyoming, where the United Mine Workers of America became the recognized representative of workers in the Union Pacific mines in 1907.

The early coal mining communities of Sheridan County were lively and vibrant, despite their generally bleak appearance. Many recreational activities were organized, including such sports as boxing, wrestling, and curling on the frozen streams and ponds. Fraternal orders, such as the Odd Fellows and Masons, also were common, as were such things as camp baseball teams, ladies aid societies, and

bands.

Between 1920-1935, coal was mined principally for domestic use and for the railroad, and high production levels continued through World War II. With the end of the war and the advent of the diesel electric engine for railroad use, however, production was restricted mostly to local consumption.

Then, during the 1970's, new markets for coal developed, especially for use in electric-generating power plants. This was a decade of boom for Sheridan County, with the resurgence of coal mining in the region. The city of Sheridan grew as a result of renewed activity in both Wyoming and southeastern Montana. The population of Sheridan County increased by over 40 percent during the 1970's, from 17,852 in 1970 to 25,048 in 1980.

Although little coal development occurred in Campbell County during the early days of mining, in recent years the focus of coal development in Wyoming has shifted to Campbell County. The Wyo-Dak Mine, the first Campbell County coal mine, was opened in 1924. Coal was shipped to the Homestake Mining Company, and later, to power plants owned by Black Hills Power & Light.

The rise of Campbell County to its pre-eminent position among the coal-producing regions of the state began during the 1970's. Spurred by new regulations on smoke stack emissions and the Arab Oil Embargo of 1973-1974, many electric utilities looked to the Wyodak-Anderson coal deposits of the Powder River Basin for new sources of inexpensive, low-sulphur coal.

The first of the huge new surface mining operations was the Amax Belle Ayr Mine, which began production in 1973. In 1978, the mine set the all-time annual production record for a single mine--18.1 million tons. The Belle Ayr Mine remained the largest coal mine in the nation for several years, until it was finally dethroned by the Atlantic Richfield Black Thunder Mine near Wright. In 1982, the Black Thunder Mine produced 16.8 million tons of coal.

If Campbell County were a state, it would rank fourth in national coal production. In 1982, Campbell County produced 77.9 million tons of coal, and in 1983, 88.1 million tons. Campbell County coal production in 1983 accounted for 78.6 percent of the state total.

With the boom in coal activity, the population of Campbell County increased rapidly. The social consequences of the rapid growth were widely disputed. The so-called "Gillette Syndrome" became popularly associated with such boomtown evils as higher crime rates, higher welfare payments, and increased divorce rates. At least one study published in the Spring 1979 edition of Wyoming Issues, however, concluded that divorce rates appeared no higher than in other Wyoming communities, that welfare payments were not disproportionately large, and that while crime did increase, most of the growth was in property related crimes.

According to 1970 census figures, the population of Gillette was 7,194. In 1980, according to adjusted census figures, the population had grown to 15,115, and by 1982, some population estimates suggest the population had grown to 17,703.

Although coal-bearing zones underlie nearly all of Campbell County, known strippable deposits underlie only 315 square miles, of 6.6 percent of the surface area. Coals are mostly thin bedded and are the least persistent in the northeastern portion of the county. Most of the active surface mines are located in southern and central Campbell County.

Coal development has occurred in other areas of the Powder River Basin as well. Coal mining in Johnson County, for example, dates back to 1888. During the county's long mining history, no less than 66 mines have been in operation, first to supply Buffalo and Fort McKinney, and later to supply other communities. Small wagon mines operated along the coal outcrops in central and southern Johnson County, with the largest mines located near Buffalo.

While the number of mines is impressive, most were small in terms of total production. Peak county production, attained in 1922, was only 16,221 tons. During 70 years of mining, cumulative coal production totaled only 462,041 tons, almost all of which resulted from underground operations. Soon after World War II, production declined rapidly, culminating in the closure of Johnson County's last coal mine in 1957.

There is some continuing interest in Johnson County's coal deposits, although no renewed development is on the horizon. Texaco still retains the rights to extensive coal reserves and to water rights at Lake DeSmet. Coal-bearing strata underlie approximately 59 percent of Johnson County, but known strippable deposits are located in an area of only 6.5 square miles (0.2 percent of Johnson County's land area).

Limited coal development also has occurred in Natrona County. In total, 30,000 tons have been recovered from small underground mines. The last mine, the Swigart Mine, was closed in 1945. According to an estimate by Berryhill et. al. (1950), at least 192 million tons of coal are located in Natrona County. However, the estimate is probably very conservative since resources were not estimated for about half the coal-bearing area of the county. Of the resources that were estimated, 157 million tons are coal strata less than 5 feet thick at depths of over 1,000 feet. The remaining 35 million tons--in thicker, less deep strata--are regarded as having the highest minable potential, although no development is forecast at present.

Important coal beds in the Powder River Basin include the Wyodak coal bed, the Anderson coal bed, the Canyon coal bed, and the Lake DeSmet coal bed. The strippable reserve base of the Wyodak coal bed (located in Campbell County) was estimated by Smith et. al. in 1972 at 19 billion tons, the largest for any single coal bed in Wyoming and perhaps the largest in the nation.

Coal production is expected to increase at a modest pace in the Powder River Basin during the next few years, especially in Campbell County. However, production probably will remain below contracted tonnages in the near-term.

COAL DEVELOPMENT IN THE HANNA FIELD

Coal in the Hanna field, located along the Platte River near the mouth of Sage Creek, was first reported by John C. Fremont in 1843. But like most early coal development in southern Wyoming, large-scale development would await the coming of the Transcontinental Railroad.

The first coal mining in the Hanna field occurred at the town of Carbon in 1868. During its heyday, Carbon's seven underground mines employed over 600 miners and produced 4.7 million tons of coal during the life of the operations. At first, the mines were operated by the Wyoming Coal and Mining Company, owned by Union Pacific President Oliver Ames and five directors in what amounted to a scheme to skim profits from the Union Pacific. Following the scandal, the Union Pacific established its own operating division, the Union Pacific Coal Company.

As the reserves at Carbon were depleted, the Union Pacific Coal Company shifted the focus of its mining activities from Carbon to Hanna. In 1888, the Dana Mine was opened. Shortly thereafter, the first of the Hanna mines was opened. Activities at Carbon were completely curtailed in 1902, when the Union Pacific rerouted its mainline. The relocation of the mainline provided a better railroad grade and further stimulated development of the large coal deposits near the town of Hanna. In all, eight mines were opened by the Union Pacific Coal Company at Hanna, before closures began in the early 1950's. Collectively, the mines of the Hanna district produced 32.7 million tons of coal between 1888 and 1971.

Two terrible mine disasters occurred in the Hanna mines near the turn of the century. On June 30, 1903, nearly the entire day shift consisting of 169 miners was wiped out in an intense explosion in the U.P. No. 1 Mine. On March 28, 1908, an explosion trapped 19 mine officials in the same mine. A second mine explosion killed 40 rescuers sent below to extricate the trapped men. All but 27 bodies were recovered from the second disaster, when the search for the missing was abandoned and the mine was sealed forever.

Strip mining began at Hanna in 1937 but did not become the predominant method of extraction in terms of total production until the resurgence of coal demand in the 1970's. While coal from the Hanna area originally was mined for railroad consumption, it currently is being used by coal-fired power plants, by the sugar beet industry, by cement manufacturers, and by other domestic users.

Some coal development also occurred in the Elk Mountain district south of Hanna during the mid-1890's. However, no significant production occurred until Jay L. Johnson's "Johnson Mine" was opened in 1929. A total of 208,324 tons of coal was recovered from four underground mines in the area between 1929 and 1945, when the underground operations were closed.

Strip mining began in the Elk Mountain district in 1944 and continued until 1951. The six active open pit mines yielded 802,915 tons of coal. After 23 years of mining, the Elk Mountain district was abandoned.

Other mining also has occurred in the Hanna Basin, but production has been insignificant. The largest producer outside the major mining districts was the Miller Mine, located in the northwestern portion of the Hanna field. Between 1932 and 1936, the Miller Mine produced only 1,229 tons of coal.

According to an estimate by Roberts and Glass (1979), an estimated strippable reserve base of 648.29 million tons of coal remained in the Hanna field in January 1978. Hanna coals accounted for 392.74 million tons of the total, Ferris coals 238.74 million tons, and Mesaverde and Medicine Bow coals 17.08 million tons. The coals of the Hanna field generally rank higher in BTU values than their counterparts in the Powder River Basin, but difficult terrain and thinner seam thicknesses make them more costly to mine.

Nowhere in Wyoming have the declining fortunes of coal been felt more acutely in recent years than in the Hanna field. As recently as 1975, Hanna Basin coal production accounted for 46 percent of the state's total coal production. By 1982, Hanna Basin production had shrunk to only 4.6 percent of the state total. One major reason has been a shift to the Powder River Basin, where thick seams and lower mining cost make coal recovery more economical. In 1982, seven mines were active in the Hanna Basin. By the end of 1983, only four remained open.

According to state coal production forecasts released by the Wyoming Geological Survey in September 1983, the fortunes of Carbon County coal can be expected to generally decline until late in the decade. No production at 1981 levels is predicted anytime between the present and 1990.

COAL DEVELOPMENT IN THE BIGHORN BASIN

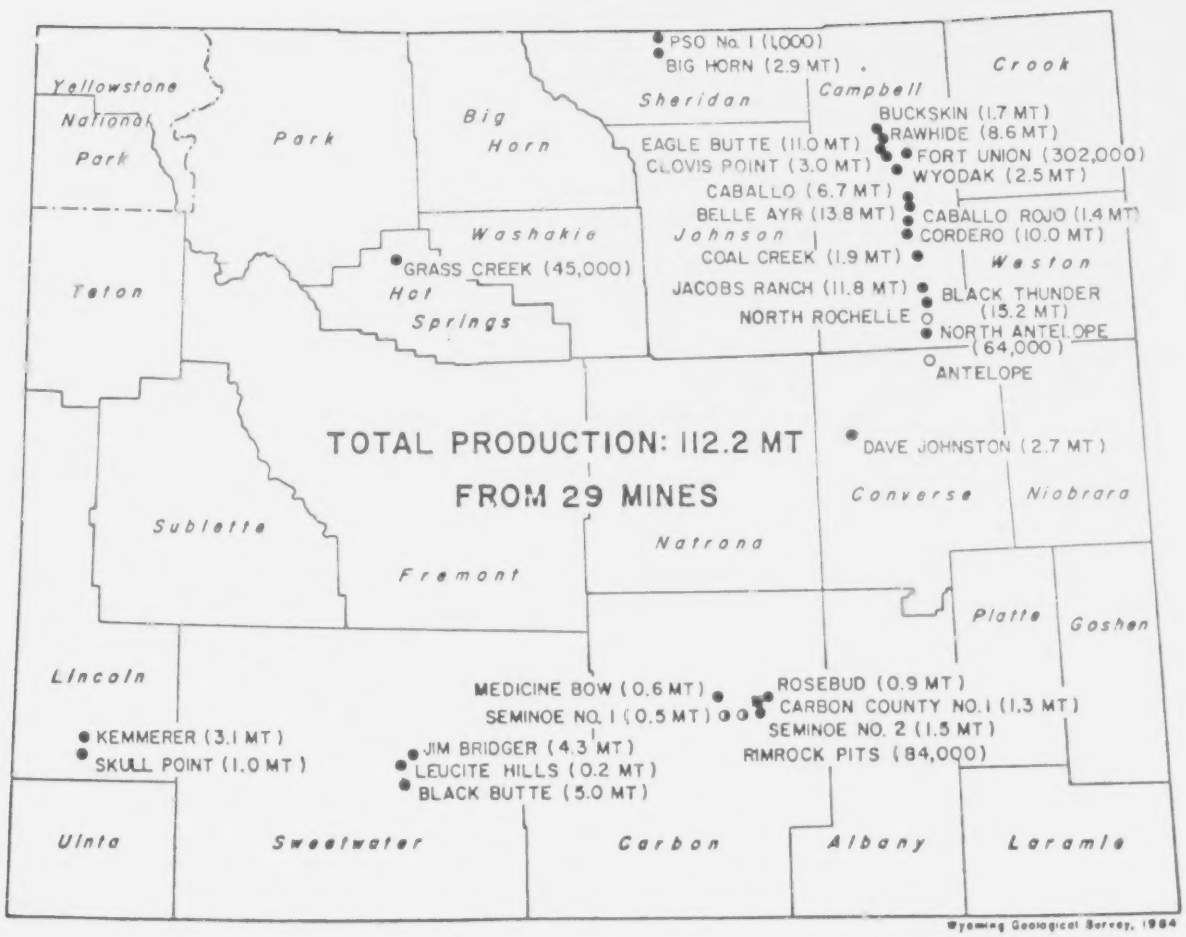
The Big Horn River Basin encompasses portions of two major coal regions: the Big Horn Basin and the Wind River coal regions. In total area, it is the third largest coal-bearing region in the state. Although coal deposits are reported in the Cloverly, Frontier, Lance, Willwood, and Atman formations, the most important beds are limited to the Upper Cretaceous Mesaverde and Meeteese formations, and the Paleocene Polecat Bench Formation.

Coal mining in the area dates back to the 1890's. However, large commercial mines did not open until the coming of the Chicago, Burlington & Quincy Railroad in the early 1900's. Production reached a peak in 1919 and remained at levels between 450,000 tons and 550,000 tons per year through 1929. When the railroad converted to diesel in the mid-1950's, annual production dropped to less than 10,000 tons per year.

Even at its peak, production from the region remained comparatively modest. In 1919, for instance, production in the Big Horn Basin accounted for only 7 percent of the state's total coal production.

Based on early mining activity, the U.S. Geological Survey identified eight coal fields within the basin. These were the Silvertip, Garland, Basin, Southeastern, Ceto, Grass Creek, Meeteetse, and Oregon Basin (Cody) coal fields. In 1982, the Northwestern Resource Grass Creek strip mine accounted for the basin's entire coal output. According to

Location of Wyoming Coal Mines, 1983



DEPAD's Mineral Development Monitoring System report, this mine is expected to provide supplies for the local market at least until 1987.

Historically, the major problem faced by coal producers in the Big Horn Basin has been the lack of nearby markets, as well as the difficult mining terrain. However, based on seam thicknesses alone, there still exists some potential for development, especially in the Gebo and Grass Creek fields.

COAL DEVELOPMENT IN THE JACKSON HOLE FIELD

The Jackson Hole field is located approximately 23 miles northeast of Jackson, almost entirely within the boundaries of the Teton National Forest. It is one of the more structurally complex fields in the state.

Only 11,382 tons of coal have been recovered from the field. Coal was mined at Pilgrim Creek and Lava Creek between 1910-1916 by the U.S. Bureau of Reclamation and was used to power equipment employed in construction of the Jackson Lake Dam (and its later reconstruction).

The Johnson and Buffalo coal mines also were located in the Lava Creek area. The mines were enterprises of local individuals and the coal produced was sold for local consumption.

The only estimate of coal resources in the field was made by Berryhill et. al. (1950)--an estimated total of 121.5 million short tons of subbituminous coal. The field remains one of the least known and least understood coal fields in the state.

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Modest Growth Seen for Powder River Coal Production

(The following is excerpted from an interview with Don Warfield, media relations representative for AMAX Coal Company's western division, concerning some of the problems faced by Wyoming coal producers. The interview was conducted in April. Minor editing is included for the sake of clarity.)

WQU: How many operations does AMAX have in Campbell County?

Warfield: We have two mines here in Campbell County. One is Belle Ayr, the other, Eagle Butte. They are two of the larger mines in the United States. At last count, Belle Ayr was number two in the U.S. and Eagle Butte was about seventh. We produce, in round numbers, 24 to 25 million tons a year.

WQU: Who are your major customers?

Warfield: We ship quite a few places. As far south as Cason, Texas. We go as far west as Portland, Oregon, as far east as Madison, Wisconsin. We go down into two places in Iowa. We go to Kansas, Arkansas, Colorado.

WQU: What are the designed production capacities of the mines?

Warfield: Those two mines could produce, if they were really running at peak capacity all the time, they could probably produce around 40 to 45 million tons. For the most part, we were projecting maximum about 35 million tons a year out of here in the '80's and '90's. It would be lower now.

WQU: How much lower?

Warfield: Good question. We had projected about 10 percent more than we're shipping right now. When you get into the "what ifs" three or four years out, it's a good question. If you remember correctly, the national goal according to Jimmy Carter for 1985 was 1.2 billion tons of coal a year. Well, last year coal production in the United States dropped about 40 to 50 million tons, down to under 800 million again. So we're not making a lot of progress toward that national goal.

WQU: Production in your mines--increases in the next couple years?

Warfield: The Powder River Basin in general was projected to increase about 3 percent to 5 percent each year of the next few years. Probably pretty close. AMAX has kind of hit a plateau. We expect to stay on 24.5 million for the next couple of years.

WQU: What factors contributed to the softness of the coal market?

Warfield: If you were to try to summarize, I guess you would have to say that the chief contributing factor, the most important thing, has been total chaos, or very nearly chaos, in the energy picture in this country in the '70's. In the mid-'70's, especially the period '73-'74, in the era of the oil embargo, there was almost a coal hysteria in this country. In 1976, for instance, the federal government instituted what was called "due diligence." Due diligence said that if you received a federal lease, anybody with a federal lease--issued after August 4, 1976, you had 10 years to get it into commercial production, or you lost your right to ever bid on any federal lease. It probably shows you how unthinking they were at that time in pushing coal production.

In the meantime, of course, there were constant cries of "gear-up! We need every pound we can produce." Well, we did, but they didn't. Everybody talked about production. Everybody still talks about production. The only thing they forgot to talk about was consumption.

Nobody's building power plants to burn it, for a number of reasons. You have to remember such things as when we said in the early '70's we were going to try to reduce sulphur in the air, and that of course made the Powder River Basin coal very desirable. By 1977, obviously some people had begun to see that was hurting the coal markets in the East and Midwest. So in '77, the amendments to the Clean Air Act said that we're going to mandate scrubbers on any new source of pollution, in other new polluters in the atmosphere, which took a competitive advantage back away from western coal.

In the meantime, of course, the oil shortage eased up and now there's a wash in gasoline, a wash in natural gas. A lot of

things are happening that result in all the gearing-up that was done to meet a consumption demand which never materialized.

In the early 1970's, we would have said, "okay, according to the government, the way to go is low sulphur coal." By the mid-1970's, at least the latter part of the '70's, it didn't matter if you went low sulphur coal or not because the government said you're going to have to scrub it and spend a lot of money on it anyway. And then, of course, the nuclear thing fell into place, and the chaos that developed there. And what it amounts to is that utilities have delayed building new power plants, they have held onto their old power plants as long as possible, at the same time conservation began to take hold and demand dropped to a point at which it almost fell off the scale, almost to zero in many cases.

A lot of different things contributed (to the softness in the market). If you want to point to one central factor, it's just almost complete chaos in terms of determining any kind of set energy policy which a utility can bet on and proceed with. Most people don't realize, for example, that it takes basically seven to 12 years to build a power plant. It takes seven to 10 years to get a coal mine open. So if the lights go out today, if you are waiting for a new plant and a new coal mine, you're going to wait until the 1990's to do it.

Several utilities are on the verge of bankruptcy because of delays and changes and uncertainties and decreased demand. Decreased revenues, just when new plants are coming on line. And there's a lot of blinding, to put it bluntly, 20/20 hindsight, by people who are running around seeking to hold rates down. As in the case of the Colstrip plant up in Montana, even to the point in that case, apparently, of either deliberately or unintentionally misinterpreting federal documents and having to later repudiate those documents. That kind of blazing 20/20 hindsight in some cases even by utility commissions leaves utilities virtually at sea not knowing when to build a power plant and when not to build a plant based on everything they could determine in the 1970's. They might need a plant at "x" location. They started building it and now they're told that they shouldn't be allowed to put it in their rates to pay for it. And they may have switched fuels two or three times in the process. In other words, the cost is going through the roof. They have no idea for sure if the plant is going to be used.

You throw all of those things together, with all of a sudden miraculous new quantities of natural gas floating around, petroleum and gas. Even though coal is still extremely cheap, compared to them. As an example, as I said we deliver to Cason, Texas, at half the cost of natural gas in Texas. The same company has a natural gas plant sitting idle because they can't afford to run it anymore. Yet all those things have combined to severely depress the coal market. One source, the United Mine Workers for instance says they have 60,000 of their 160,000 people out of work.

WQU: How much of the delivered price of Powder River coal is transportation costs?

Warfield: Roughly two-thirds.

WQU: Presuming something could be done about transportation costs, would that put you in a more competitive position?

Warfield: What are you going to do about transportation costs? The state of Wyoming has specifically rejected the option of a slurry pipeline. That's one form of competition. The Chicago & North Western is attempting to make its presence felt in the Powder River Basin in competition with the Burlington Northern and that has brought some contracts down, but then by the agreement which they have filed with the ICC (Interstate Commerce Commission), the Chicago & North Western only comes north as far as what is called "Coal Creek Junction." So that reduces their effectiveness as a competitor. It's pretty easy, and it's become very popular, to be railroad haters in Wyoming and Montana. Montana is better off, they only have one railroad to hate in their case, but they look to us with envy and say, "Well, you have three railroads to hate." It's politically popular to hate railroads because you can't do a thing about them. The Staggers Act did some good things, some controversial things, but in point of fact, it is very easy for a politician or a special apologist for severance tax to stand up and say, "Well, if it wasn't for the railroad, we wouldn't be out of line with our price."

The railroad contributes. Everything contributes. Production costs, severance tax, everything. The rail rates are about two-thirds of the cost. They are the highest single factor. We have not been anymore bashful than anybody else, I suppose, about pointing that out. It is also an extreme fallacy to say that all our problems are the result of the railroad. They're not.

WQU: What is an average typical price of the (Powder River) coal itself?

Warfield: Our average representative price reported by AMAX Inc. in the annual report this year in western coal was $6.14. That's down $1.34 a ton from '82.

WQU: Are you feeling pressure from utility companies to renegotiate contracts?

Warfield: There are always contract reopeners coming up. Whether or not you renegotiate down, I think, depends a lot on where you were to start with. If you are very competitive to start with, you're probably not going to go down at all, or very far down. If you were out of line, you might get pressured down. That's for sure. No utility which has to report to the public service commission, and virtually all of them do, can justify paying too much for its coal. So in a market like you have now, there is always downward pressure. But I think most utilities by the same token are smart enough to realize that if they have a good reliable supplier that ships them a good product, they're willing to pay a little more for that product to get the kind of reliability and stability they need. Now if they're adventuresome, they can always go out on the spot market, pick up a lot of that coal a lot cheaper.

WQU: What about the state regulatory environment? Are there any particular problems operating with state regulations, laws, severance taxes?

Warfield: No, I don't think so. By and large, the Wyoming regulatory climate has done a pretty commendable job. I think Wyoming has one of the better programs. I don't think anyone in the industry realistically expects the severance tax to be lowered. I think, on the other hand, there's a growing realization that not only with industry, but outside the industry, that you can only gore the golden ox so many times. You can't raise the severance tax out of sight.

WQU: At one time, the U.S. Department of Energy projected almost never-ending spirals of increased demand. Do you think utilities, to a lesser extent coal companies, and the government got caught up believing their own forecasting?

Warfield: I think everybody got caught up in predictions. I think that was partially what I was saying about the late 1970's: "Gear up. We need every pound." I think a lot of people, a lot of utilities, the government itself, all got caught up in that and they turned to their supplier and said, "we're going to need this." So we got caught up.

WQU: Do you think one reflection of that are these 24-million ton capacity mines that are producing only 10 million tons?

Warfield: Sure. There will be some gradual growth. If you're an average mine you might realistically look at 5 percent growth (annual) over the next couple to three years.

WQU: Is it realistic to expect there's going to be any great upsurge in coal anytime this decade?

Warfield: No. Steady, slow growth. Which is okay.

WQU: Such growth would be attributed to what kinds of things?

Warfield: Well, to have a great upsurge in coal production you would have to have a great upsurge in coal consumption, and there's nothing like that on the horizon. Again, you're back to the old "who's going to burn it" question. There are no tremendous upsurges in power plant construction that are going to come on, considering how much over-generation capacity some utilities have at present. Other utilities have growth factors that are not rising at a significant rate. Some are, but there's a lot of production capacity in the U.S. to take care of that right now.

S.T. Mast IPR

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Reduced Rail Rates Would Increase Powder River Coal Sales, Study Concludes

The elimination of excessively high monopoly rail rates charged by the Burlington Northern Railroad on Powder River Basin coal shipments would increase Powder River Basin coal sales by about 15 percent on average and by about 30 percent to Texas utilities, according to a recently released study conducted by two University of Wyoming researchers.

The study, entitled "Falling World Oil Prices and the Role of Railroads in the Market for Wyoming Coal," was conducted by Associate Professor Scott E. Atkinson and Joe Kervliet of the UW economics department for the Wyoming Industrial Fund. The study included both accounting and financial market analyses of Wyoming railroads, and econometric analyses of both the railroads and the coal companies.

Based on the financial analysis, the study concluded that the Union Pacific, the major coal-hauler in southern Wyoming, was extremely healthy and free from risk. The Burlington Northern, which ships coal from the Powder River Basin, was not as financially strong as the Union Pacific, but was, nevertheless, quite sound. The study also concluded that so-called "betterment accounting," under which replacement of rails, ties, and ballast on existing track were treated as current expenses, had substantially biased downward railroad profits and rates of return. (Betterment accounting was ended by the Interstate Commerce Commission in 1983. Railroads must now depreciate rails, ties, and ballast over their useful lifetimes.)

Based on the econometric analysis of railroads and coal companies, the study concluded that the coal companies are highly competitive producers that enjoy no significant monopoly power. Both the Burlington Northern, in particular, and the Union Pacific, on the other hand, possess substantial monopoly power.

In the case of the Burlington Northern, the study concluded that the railroad's excessively high monopoly rates on its Powder River Basin coal shipments were consistent with "making up" for less profitable segments of its overall operations. The study found that the the Burlington Northern's exercise of monopoly power was particularly great in the case of Texas utilities. In the cases of Houston Lighting and Power, and City Public Service of San Antonio, the study concluded that monopoly profits pushed up rail rates as much as 16 percent to 18 percent.

In addition to increasing coal sales from the Powder River Basin, the study concluded that elimination of the monopoly mark-up would also result in increased severance taxes to the state of Wyoming. Since the base for severance taxes is mine-mouth production value, total severance tax collections would increase in proportion to total production increases, the study concluded.

S.T. Mast, IPR

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Coal Forecasts Reflect Changing Times

Forecasting anything beyond the certainty of the moment is tricky business. Trends that appear certain today may just as rapidly dissolve tomorrow, rendering the most scientifically designed projections mere curiosities.

And yet forecasting future economic trends can be important. In Wyoming, for example, forecasting future minerals production also tells policy-makers what might be expected in terms of future severance taxes, and thus, what levels of future program funding might be appropriate.

Still projections remain matters partly of science and partly of providence, as the record of projecting Wyoming and U.S. coal production attests.

Projections made by the Wyoming Geological Survey during the mid-1970's of state coal production proved to be remarkably accurate. In 1975, based on contracts and firm plans, the Survey predicted that Wyoming coal production would increase from 24.4 million tons in 1975 to 111 million tons in 1985. This represented an average annual increase of 8.66 million tons. In order for such forecasts to materialize, the Survey pointed out that Wyoming coal companies would have to increase production to unprecedented levels, mining as much coal in the 13 years between 1973 and 1985 as had been mined in the state during the preceding 108 years.

Envisioning increases of such proportions entails a certain element of risk. And yet, the production increases forecast in 1975 largely came to pass. The Wyoming Geological Survey's 1975 forecast of 1983 production missed the actual production mark by only 5 million tons (112.2 million tons actual production versus 107.2 million tons forecast).

In June 1976, the Survey repeated its 1975 performance, missing actual 1983 production by only 2.8 million tons (112.2 million tons actual production versus 115 million tons forecast). In 1976, it appeared from all available data that coal production would continue to make giant strides. The Federal Energy Administration, in its 1975/1976 Annual Report, suggested that national coal production could reach 1.04 billion tons by 1985, with much of the increased production expected in the West. Further, the report suggested that 88.3 percent of the total gain could be in low-sulphur coal, and coal production in the Northern Great Plains could rise from 35 million tons in 1974 to 274 million tons in 1985.

In the forecasting years subsequent to 1976, the Wyoming Geological Survey forecast even larger state production levels for 1983 than it had in previous years. In 1977, the Survey forecast 1983 state production at 132.4 million tons, and in 1981, at 136.4 million tons.

By 1982, however, a number of dampening factors had been drawn more clearly into focus. Conservation had cut sharply into total energy demand. As a consequence, fewer new power plants were being built. In addition, federal requirements for scrubbers on new power plants had helped erode western coal's competitive advantage. At the same time, a national recession was causing even further reductions in coal demand. In a word, the political and economic situation had rendered projections of 1983 Wyoming coal production in the 130-million-ton range obsolete. In 1982, the Survey scaled back its 1983 production forecast to 112 million tons--approximately where it had been when forecasting was done in 1975-1976.

At the national level, total U.S. coal production in 1983 was 784.9 million tons, actually a drop from 1982 production, and a long way from the 1.04 billion tons envisioned by 1985 in the 1975/1976 FEA Annual Report.

Based upon currently available data and trends, the Wyoming Geological Survey is now calling for Wyoming coal production to increase at a rate of 4 percent to 6 percent through 1988. Beyond 1988, the Survey sees a potential plateau in production, since as much as 18.3 million tons of potential new power plant tonnage has been cancelled or postponed into the 1990's. In its March 1984 state coal forecasts, the Survey is calling for coal production to reach 118.3 million tons in 1984, 141.8 million tons in 1987, and 151.9 million tons in 1990. In the Powder River Basin, the Survey projects production increases to 99.6 million tons in 1984, to 123 million tons in 1987, and to 130.1 million tons in 1990.

In the long-term, the Survey remains optimistic about Wyoming's coal production prospects, since the state's 1 trillion tons of coal represents 25 percent of the nation's total coal resources.

S.T. Mast and Ruth Tebbutt, IPR

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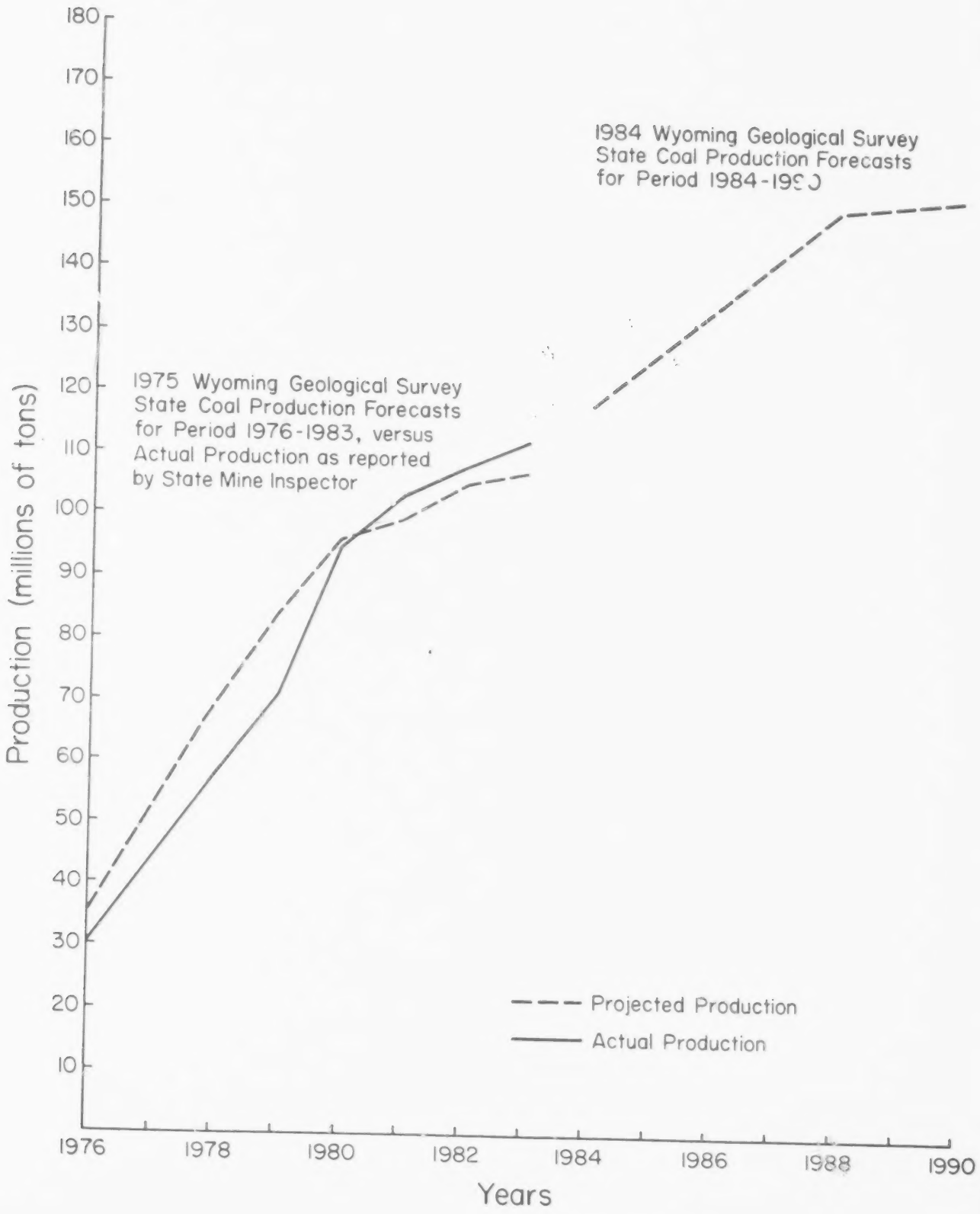
1984 Wyoming Geological Survey
State Coal Production Forecasts
for Period 1984-1990
1975 Wyoming Geological Survey
State Coal Production Forecasts
for Period 1976-1983, versus
Actual Production as reported
by State Mine Inspector
Projected Production
Actual Production
Production (millions of tons)
Years
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
1976
1978
1980
1982
1984
1986
1988
1990

Coal-mining Wages Bolster State Personal Income Figures

For several years, personal income statistics for the state of Wyoming consistently ranked among the highest in the nation, bolstered to a large extent by the high wages paid by the mining sector. One graphic illustration are the wages paid production and maintenance employees in the Wyoming coal industry.

According to a recently released wage survey published by the State Department of Labor and Statistics, the average "straight time" hourly wage paid the 3,492 production and maintenance employees working in the Wyoming surface mines was $16.23 for production employees and $16.35 for maintenance employees. Assuming a regular work year (excluding overtime), such employees can expect, on average, to earn approximately $30,000 per year.

The highest paid surface mine production workers revealed by the survey were dragline operators, earning an average hourly wage of $17.68, followed by shovel operators, with an average wage of $17.65 per hour. The lowest paid production workers were laborers, with an average wage of $13.77 per hour.

Among maintenance employees, the highest paid hourly workers were machinists (average wage of $17.56 per hour), followed by maintenance technicians ($17.51) and electricians ($17.31). The lowest wages among maintenance employees were for janitors ($12.73 per hour) and watchmen ($13.56).

Overall, the survey revealed that 73.1 percent of all wage grade, surface mine employees were paid between $15.50-$17.99 per hour. Approximately 78 percent of all production employee wages fell within this range, while approximately 64 percent of all maintenance employee wages fell within this range.

No significant difference in wages paid men and women within each occupational category was demonstrated. However, women tended to be concentrated in the lower wage levels. Among production employees, the highest concentration of women was in the laborer classification (26.6 percent), the lowest paid class of production employees. Among maintenance employees, the highest concentration of female workers was in the warehouse/material handler classification (35.3 percent), with an average wage of $14.15. Among the highest wage classifications, no women were employed as dragline operators and only two (1.4 percent of the total) were employed as electricians. In all, the survey revealed that 215 women were employed in wage grade, surface production activities (comprising 10.1 percent of all employees in production activities), while 81 women were employed in similar maintenance employment (5.9 percent of the total).

Wages paid surface mine employees have increased dramatically in recent years. In 1975, for example, dragline operators earned an average hourly wage of $8.34. By 1984, the average hourly wage had increased to $17.68, an increase of 112 percent. Nor was the dramatic rise in wages limited to the highest wage-grade echelons. In 1975, laborers earned an average wage of $6.50. By 1984, the average wage had shot up to $13.77, an increase of 111.8 percent. During the period from 1975-1984, the biggest percentage increase in wages was registered among persons employed as drill helpers. In 1975, drill helpers earned an average of $6.76 per hour. By 1984, drill helpes earned an average of $15.19, an increase of 124.7 percent.

One might be tempted to assume that the dramatic increase in wages might be related to strong union representation and collective bargaining. However, such was not the case. The percentage of employees represented by unions has steadily declined since 1975. Of the 11 new surface mines that have begun operations in Wyoming since 1975, only one had union affiliated employees, and of the six largest producing mines in the state, all are non-union. This trend is particularly apparent in the Powder River Basin, where despite repeated attempts by several unions to organize in the mines, few in-roads have been made.

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ECONOMIC CHANGES

ECONOMIC CHANGES

(Editor's note: The purpose of this section is to point out areas in the Wyoming economy in which noteworthy changes occurred, or in which existing trends were significantly accentuated, during the latest reporting period.)

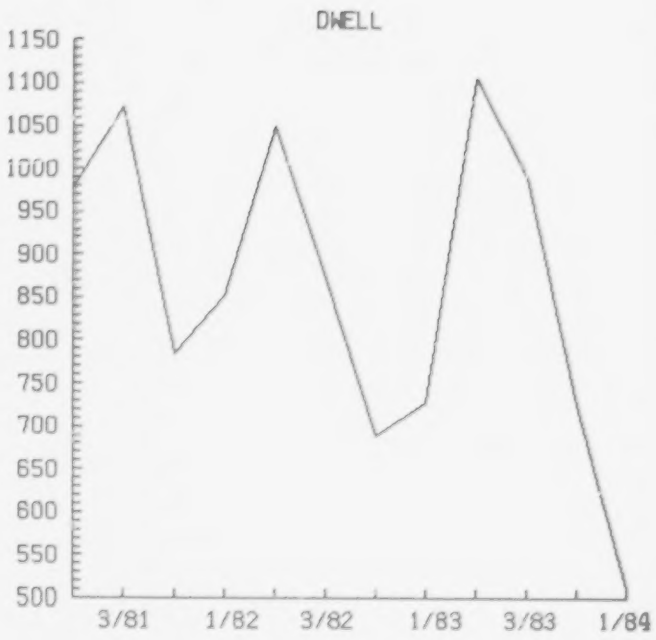
Developments in construction, unemployment, and retail sales indicators highlight the Update's first quarter statistics.

The number of new residential dwelling units reported for the first quarter fell to 512, marking a 29.57 percent decrease from the first quarter of 1983, and a continuation of a decline over the past three quarters. In addition, both the values of residential and nonresidential dwellings constructed during the period dropped significantly.

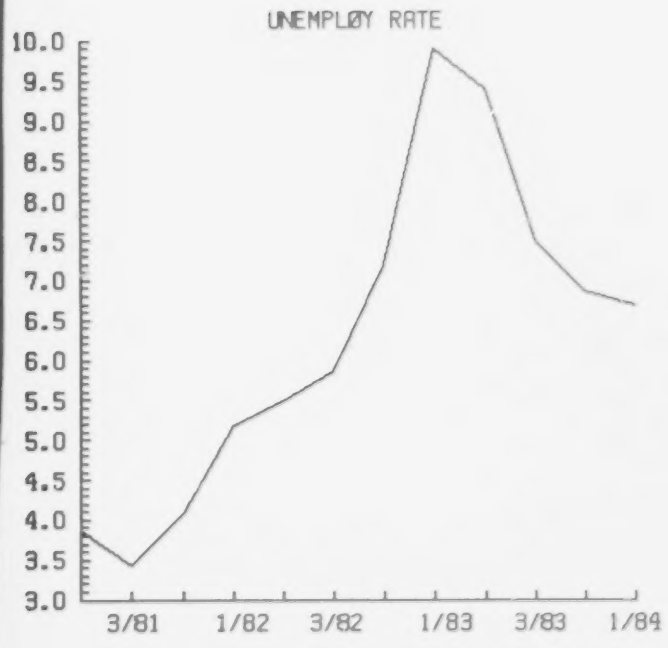
Wyoming's unemployment rate dropped another 0.2 percentage point during the first quarter, as compared to the fourth quarter of 1983, to 6.7 percent. This compares to a 9.9 percent rate recorded during the first quarter of 1983. At the same time, the number of unemployed workers in Wyoming during the first quarter stood at 17,005, as compared to 24,770 during the first quarter of 1983. These figures suggest a resurgence in the state's economy, despite generally sluggish activity in the mining sector.

Sales and use tax collections also continued to rise during the first quarter, although the increase over the fourth quarter of 1983 was modest (from $55,424,000 to $55,954,000) and still behind collections for the first quarter of 1983.

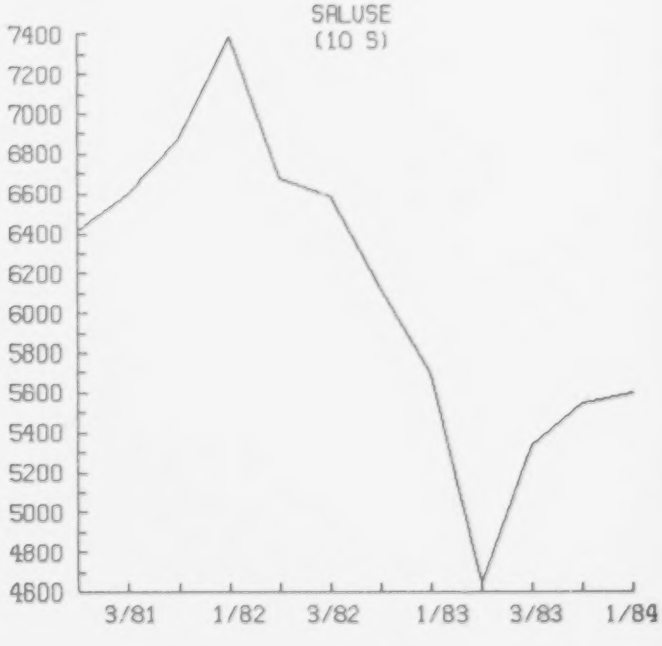
NEW RESIDENTIAL DWELLING UNITS



UNEMPLOYMENT RATE



SALES & USE TAX COLLECTIONS (10's)



WYOMING DATA

Table 3: Agriculture[1]

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. Timber Cut in Wyoming National Forests (WEF) Price Indices[2] (1967=100)	5810.	25613.	33929.	11658.	4285.	23430.	26318.	14707.	5208.	35941.	47574.	21261.
2. Wyoming Crops, Prices Received-Latest	371.	315.	288.	260.	249.	245.	244.	247.	256.	284.	280.	275.
3. Wyoming Crops, Prices Received-Average	347.	325.	301.	275.	251.	239.	243.	246.	253.	268.	280.	275.
4. U.S. Crops, Prices Received-Latest	265.	232.	234.	232.	240.	239.	220.	234.	243.	263.	262.	271.
5. U.S. Crops, Prices Received-Average	271.	249.	232.	238.	240.	235.	221.	226.	245.	254.	262.	265.
6. Wyoming, All Commodities, Prices Received-Latest	290.	270.	239.	256.	256.	250.	225.	261.	251.	238.	245.	262.
7. Wyoming, All Commodities, Prices Received-Average	284.	267.	251.	246.	261.	246.	234.	249.	254.	237.	240.	255.
8. U.S., All Commodities, Prices Received-Latest	260.	243.	233.	244.	252.	248.	232.	245.	246.	250.	256.	266.
9. U.S., All Commodities, Prices Received-Average	260.	252.	236.	243.	251.	247.	234.	240.	248.	247.	251.	263.
10. Wyoming Livestock, Prices Received-Latest	265.	257.	224.	254.	258.	251.	219.	265.	250.	224.	235.	257.
11. Wyoming Livestock, Prices Received-Average	266.	250.	236.	239.	264.	248.	231.	249.	254.	228.	228.	248.
12. U.S. Livestock, Prices Received-Latest	257.	254.	233.	254.	262.	257.	243.	256.	248.	240.	252.	263.
13. U.S. Livestock, Prices Received-Average	251.	256.	240.	248.	261.	258.	245.	253.	251.	242.	242.	262.
14. Prices Paid by U.S. Farmers-Latest	306.	306.	304.	314.	317.	316.	315.	321.	324.	326.	328.	335.
15. Prices Paid by U.S. Farmers-Average	305.	306.	305.	313.	315.	317.	315.	320.	324.	325.	327.	333.

[1] First time readers of WQU should refer to the "Format" page (in back) for an explanation of abbreviations and table formats.
[2] The index for the last month (latest) of each quarter, along with the average of the three monthly indices of each quarter.

Sources: Series 1: United States Forest Service. "Timber Cut and Sold, Convertible Products." Region 2 and 4 reports published quarterly.
Series 2-15: Wyoming Crop and Livestock Reporting Service. Bi-weekly Ag Statistics.

Table 4: Banking and Finance

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. Total Bank Loans and Lease Financing Receivables (T$)[1]	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	2313197.
2. Total Bank Deposits (T$)	3112270.	3161593.	3278504.	3237333.	3322621.	3345619.	3587554.	3537206.	3669552.	3683748.	3789387.	3747828.
3. Total Non Interest-Bearing Deposits (T$)[1]	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	657189.
4. Savings and Loan Mortgage Loans (T$)[2]	788526.	785208.	778334.	762153.	760622.	766593.	765708.	758938.	760041.	775159.	775795.	767125.
5. Savings and Loan Deposits (T$)	891585.	911587.	904212.	921642.	907758.	893087.	895889.	921290.	960250.	966113.	1006927.	1051271.
6. Prime Interest Rate[3]	20.0	20.0	15.8	16.2	16.2	13.5	11.8	10.5	10.5	11.0	11.0	11.5

[1] During the first quarter of 1984, the Wyoming State Bank Examiner began publishing it's quarterly report ("The Abstract Report of State and National Banks in Wyoming") in a slightly different format. IPR will therefore be altering the following banking and finance data series: total bank loans and total demand deposits. Beginning in the first quarter of 1984, data for total bank loans will include lease financing receivables; data for total bank demand deposits will be replaced by figures for noninterest-bearing deposits. For comparison, the reader can refer to past issues of the WQU.
[2] Only members of the Federal Home Loan Bank Board are included.
[3] Rate is for the last month of the quarter.

Sources: Series 1-3: Wyoming State Bank Examiner Quarterly Report.
Series 4 and 5: Federal Home Loan Bank of Seattle, Monthly Report. Comparative statistical analysis of member institutions.
Series 6: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published Monthly.

Table 5: Business Conditions

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. New Domestic Corporations	459.	459.	400.	389.	428.	403.	377.	348.	410.	366.	309.	359.
2. New Foreign Corporations	357.	356.	358.	357.	326.	285.	272.	240.	259.	331.	292.	260.
3. Total New Corporations	816.	815.	758.	746.	754.	688.	649.	588.	669.	697.	601.	619.
4. Business Failures	25.	27.	33.	31.	46.	54.	58.	47.	68.	52.	58.	58.
5. Value of Business Failures ($)	-635217.[1]	-240995.[1]	2987139.	2331991.	6842595.	-13034324.[1]	-6860186.[1]	6438421.	6400333.	535473.	-8163171.[1]	16761895.
6. Personal Bankruptcies	104.	98.	85.	96.	125.	123.	122.	140.	152.	172.	141.	180.

[1]Assets exceed liabilities.

Sources: Series 1-3: Secretary of State. New and Foreign Corporations. Monthly report.
Series 4-6: Cheyenne Credit Bureau. Wyoming bankruptcy cases, business failures, and value of failures. Weekly publication.

Table 6: Construction

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. New Residential Dwelling Units	978.	1072.	784.	851.	1050.	872.	689.	727.	1106.	993.	725.	512.
2. Value of Residential Dwellings Constructed (M$)	56.1	67.8	40.4	40.4	58.6	51.2	41.9	44.4	74.7	60.4	44.0	30.6
3. Value of Nonresidential Construction (M$)	68.5	63.1	57.6	25.2	59.8	63.1	35.2	37.9	54.4	53.3	[illegible]	11.0
4. Building Permits Issued in Selected Wyoming Cities	4040.	3755.	2516.	2317.	3353.	4295.	2473.	2762.	3586.	3701.	2163.	2025.
5. Value of Authorized Construction (T$)	63557.	91789.	53839.	49768.	62939.	101359.	35383.	37119.	46402.	68715.	51915.	29471.
6. Mortgage Interest Rate[1]	14.12	14.69	15.23	14.93	14.74	14.34	13.09	12.97	11.90	12.08	11.94	11.64

[1]Conventional first mortgage for new home purchase. U.S. average for last month of quarter.

Sources: Series 1-3: F.W. Dodge Division of McGraw-Hill. "Dodge Construction Potentials." Published monthly.
Series 4-5: Institute for Policy Research. "Local Construction Reports." Survey of authorized construction in selected cities conducted monthly.
Series 6: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published monthly.

Table 7: Consumers

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. New Truck Registrations	4175.	4067.	3502.	4176.	3636.	3024.	3230.	3233.	3415.	3417.	4363.	3927.
2. New Car Registrations	4879.	4664.	3808.	4249.	4042.	3506.	3610.	3272.	3539.	3671.	3483.	3083.
3. Wyoming Personal Income (M$)	1403.	1477.	1474.	1476.	1524.	1477.	1512.	1398.	1484.	1589.	1589.	INA
4. US Disposable Income (B$)	2010.	2092.	2121.	2128.	2159.	2192.	2228.	2256.	2301.	2362.	2424.	2503.
5. US Personal Income (M$)	601311.	615581.	632052.	620600.	636571.	639828.	660944.	651843.	666761.	682774.	714509.	INA
6. Latest US Consumer[1] Price Index (1967=100)	271.4	279.1	281.1	282.5	290.1	292.8	292.0	293.0	297.2	300.8	301.5	303.3
7. Quarter's Average US CPI	269.1	276.7	280.4	281.9	286.8	292.3	292.9	292.5	296.1	299.5	301.4	303.1
8. Liquor Sales (T$)	9397.	9396.	11365.	7789.	9057.	8917.	10464.	7102.	7868.	8455.	9863.	6622.

[1]Number shown is for the last month of the quarter. CPI shown is the index for wage earners and clerical workers, not the CPI-U.

Sources: Series 1-2: R.L. Polk and Company Motor Statistical Division. "National New Vehicle Registration Service." Published monthly.
Series 3,5: Business Week. Monthly personal income for states, regions, and the U.S. Reported monthly.
Series 4,6,7: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published monthly.
Series 8: Wyoming Liquor Commission. Sales data are reported to IPR.

Table 8: Employment and Labor[1]

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. Civilian Labor Force	255956.	260041.	247523.	243298.	257820.	258974.	251909.	250258.	267248.	273592.	256902.	253365.
2. Employment	246075.	251110.	237402.	230717.	243696.	243798.	233790.	225488.	242087	253149.	239275.	236361.
3. Unemployment	9881.	8931.	10121.	12581.	14123.	15177.	18120.	24770.	25161.	20443.	17627.	17005.
4. Unemployment Rate	3.9	3.4	4.1	5.2	5.5	5.9	7.2	9.9	9.4	7.5	6.9	6.7
5. Initial Claims Filed	5901.	5463.	8837.	11237.	11225.	10894.	14183.	15650.	11576.	8796.	10507.	10502.
6. Applications Received	13522.	13884.	10537.	12070.	14838.	15359.	13102.	12950.	11787.	12144.	9359.	10290.
7. New Non-Agricultural Openings	9903.	12991.	8010.	6119.	8344.	9190.	7035.	4724.	6185.	7992.	5528.	4679.
8. New Non-Agricultural Placements	7681.	10072.	6931.	5138.	7161.	8079.	5450.	4106.	6608.	10529.	6446.	5946.
9. Miners' Average Weekly Hours	42.8	41.5	42.5	42.0	41.7	39.7	38.1	39.9	38.5	39.6	39.2	42.9
10. Miners' Average Weekly Pay ($)	453.75	447.13	459.64	476.53	480.37	471.92	464.35	490.14	472.75	481.23	493.28	549.49
11. Miners' Average Hourly Wage ($)	10.61	10.78	10.81	11.34	11.52	11.90	12.18	12.27	12.29	12.15	12.58	12.81

[1]The most recent year's data are preliminary.

Sources: Series 1-11: Wyoming Employment Security Commission. Labor Force Trends. Published quarterly.

Table 9: Energy and Mineral Production

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. Wyoming Coal (TST)	24574.	25108.	23556.	26586.	25809.	24257.	26054.	25400.	24746.	29854.	30020.	32626.
2. U.S. Coal (TST)	145696.	235672.	224793.	219743.	209771.	195253.	189307.	190260.	180439.	204127.	197833.	226875.
3. Wyoming Oil (TBPD)	358.	358.	358.	358.	354.	324.	324.	321.	318.	323.	317.	309.
4. U.S. Oil (TBPD)	8548.	8550.	8566.	8629.	8657.	8653.	8679.	8679.	8675.	8672.	8663.	8648.
5. Wyoming Natural Gas[1] (MCFD)	1293.	1118.	1068.	1136.	1038.	1075.	1306.	1128.	1222.	1011.	1283.	INA
6. U.S. Natural Gas[1] (MCFD)	55013.	53747.	53728.	55449.	50977.	48349.	48335.	47208.	42668.	44279.	47795.	INA

[1] Includes revised data.

Sources: Series 1,2,5, and 6: U.S. Department of Energy. Energy Data Reports. Gas data are published monthly, and coal data are published weekly.
Series 3-4: The Oil and Gas Journal. U.S. and Wyoming Oil Production published weekly.

Table 10: Government

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. Sales and Use Tax Collections (T$)	64136.	66012.	68766.	73830.	66759.	65903.	61208.	56909.	46453.	53361.	55424.	55954.
2. Violent Crime[1]	468.	599.	553.	373.	389.	411.	295.	301.	274.	409.	241.	221.
3. Nonviolent Crime[2]	5783.	6111.	5299.	4811.	5778.	6346.	5093.	4802.	4821.	5319.	4219.	3728.
4. Stolen Property (T$)	4471.	4421.	3201.	3541.	4562.	3982.	2963.	3176.	2918.	3005.	2892.	2065.
5. Stolen Property Recovery Rate	45.4	40.6	58.6	46.9	49.3	42.8	42.8	46.5	36.9	40.3	46.1	42.7
6. Percent of Crimes Cleared[3]	23.4	19.5	22.3	24.9	21.0	20.1	21.3	22.8	21.8	24.2	23.5	30.9

[1] Murder, negligent homicide, forcible rape, robbery, aggravated assault.
[2] Burglary, larceny, auto theft.
[3] Clearance of a crime indicates resolution of a complaint by arrest or other extraordinary means.

Sources: Series 1: Wyoming Department of Revenue and Taxation, Sales and Use Tax Division. "Net Collections by Business Class by County." Published monthly.
Series 2-6: Uniform Crime Reporting Center for Criminal Justice Research, Division of Criminal Identification, Office of the State Attorney General. "Crime in Wyoming." Published quarterly.

Table 11: Tourism

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
Visitors, National Parks and Monuments												
1. Yellowstone	609642.	1715175.	149682.	82758.	600071.	1614242.	116082.	65368.	553986.	1653211.	133088.	63927.
2. Grand Teton	847464.	2147775.	393843.	185935.	820236.	2066704.	371007.	183675.	686326.	1462761.	238442.	136459.
3. Devil's Tower	63064.	205660.	18159.	9425.	86305.	161989.	13232.	8912.	87506.	160953.	16894.	9037.
4. Fossil Butte	3795.	7769.	1018.	596.	6691.	10303.	1601.	626.	5134.	9120.	4206.	246.
5. Fort Laramie	40192.	64598.	10190.	5037.	31447.	51881.	6906.	4887.	28311.	56592.	7665.	2352.
6. Big Horn NRA-South[1]	34846.	56566.	27820.	17701.	42059.	53839.	30720.	13428.	44977.	56419.	29358.	18715.
Other Tourism Indicators												
7. Traffic Count (Avg. # of Vehicles/Day)	125992.	169095.	103436.	103864.	126037.	166170.	97892.	84187.	122665.	167385.	97696.	85780.
8. Hotel, Motel, and Camp Sales Tax (T$)	1272.	2073.	1447.	1247.	1273.	2226.	1323.	912.	1048.	2017.	1397.	979.
9. Gasoline Sales (TGL)	93721.	109335.	87500.	72548.	93556.	108733.	81347.	71330.	81160.	107116.	79911.	71400.[2]

[1] Big Horn Canyon N.R.A. is only partially in Wyoming. Only visitation for the Wyoming part is shown.
[2] Estimated from trend and January and February data.

Sources: Series 1-6: Monthly visitor use reports of the National Park Service.
Series 7: Traffic Survey Unit - Planning Branch, Wyoming State Highway Department. "Selected Recording Stations Traffic Counter Data." Published monthly.
Series 8: Wyoming Department of Revenue and Taxation monthly report.
Series 9: Petroleum Association of Wyoming. Monthly Gasoline Gallonage Report.

Table 12: Utilities[1]

Calendar Quarters	2/81	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84
1. Residential Electric Connections	169494.	169777.	174369.	174018.	174126.	177081.	177968.	179111.	179717.	178762.	178535.	179967.
2. Residential Electric Consumption (TKWH)	331256.	282226.	218361.	504636.	375401.	302786.	391608.	489892.	392223.	294755.	395182.	562483.
3. Commercial Electric Connections	29605.	30522.	30047.	30833.	31086.	30841.	30388.	30772.	31194.	30533.	31404.	32340.
4. Commercial Electric Consumption (TKWH)	288617.	317998.	303091.	354594.	319879.	331351.	327961.	351633.	327565.	353743.	342219.	485953.
5. Industrial Electric Connections	3384.	3484.	3590.	3581.	3451.	3702.	3751.	3647.	3667.	3655.	3624.	3119.
6. Industrial Electric Consumption (TKWH)	1097628.	1112398.	1156967.	1266782.	1179112.	1178792.	1225845.	1471528.	1388817.	1397176.	1016334.	1456749.
7. Other Connections[2]	3266.	4102.	3652.	4520.	4778.	3243.	2857.	2819.	3059.	3164.	2791.	2759.
8. Other Consumption (TKWH)	45006.	72994.	79409.	48237.	31570.	70139.	12240.	6780.	8710.	46427.	13306.	6129.
9. Residential Natural Gas Connections	73712.	72966.	74828.	75677.	75413.	74861.	75955.	76567.	76449.	74638.	75037.	76263.
10. Residential Natural Gas Consumption (TCF)	2180779.	814900.	2499236.	4607468.	2504865.	872772.	2972244.	6531664.	8926691.	2871311.	8444801.	15230399.
11. Commercial Natural Gas Connections[3]	6557.	6385.	6393.	6482.	6552.	6452.	6476.	6873.	6869.	6710.	6817.	6881.
12. Commercial Natural Gas Consumption (TCF)[3]	970295.	382137.	943319.	1955899.	1075767.	385052.	1196763.	3667569.	5716746.	1792146.	4865053.	9496853.
13. Industrial Natural Gas Connections	94.	90.	89.	89.	90.	90.	95.	97.	97.	97.	98.	94.
14. Industrial Natural Gas Consumption (TCF)	5607535.	4959825.	7479593.	7328389.	5335475.	5564715.	7918440.	7626560.	10221456.	9291988.	13201149.	13193998.
15. Other Natural Gas Connections[3]	344.	349.	398.	400.	404.	409.	409.	48.	48.	46.	45.	45.
16. Other Natural Gas Consumption (TCF)[3]	147575.	87695.	196349.	299920.	134722.	44697.	138389.	176.	322.	5323.	267.	235.
17. Business Telephone Connections	45495.	47932.	47828.	48501.	49003.	49179.	48824.	48052.	46102.	46550.	45715.	INA[4]
18. Private Telephone Connections	159456.	160688.	163100.	163790.	162953.	162126.	162394.	160658.	155637.	103791.	146306.	INA[4]

[1]Some small utilities do not report, hence the data are slightly less than actual state totals. The data are consistent. The same utilities' reports are included in each figure.
[2]"Other" includes agriculture, municipal, and other public.
[3]Figures for the first and second quarter of 1983 reflect a change in the authority connections/consumption made by the Northern Utilities. Prior to January 1983, the company listed public authority under the category of other natural gas connections/consumption. Northern Gas now combines public authority connections/consumption with their commercial natural gas connections/consumption.
[4]Due to divestiture, Mountain Bell is no longer able to provide IPR with the telephones in service figure; because Mountain Bell accounts for the bulk of telephone mainline service in Wyoming, IPR has decided to discontinue the telephone data series.

Sources: Series 1-18: Reports to IPR by selected electric, natural gas, and telephone utility companies. Survey conducted monthly.

Wyoming Comparative Cost of Living Index* (April 4-6, 1984): Cheyenne = 100

CTIY	RANK	ALL ITEMS	FOOD	HOUSING	TRANSPORTATION	MEDICAL
Gillette	1	120.86	105.22	150.36	102.58	107.48
Jackson	2	118.62	107.14	139.75	105.00	107.16
Evanston	3	110.25	102.62	125.15	102.07	102.52
Kemmerer	4	109.75	100.53	123.89	101.83	105.67
Sheridan	5	108.63	105.63	117.88	100.84	101.93
Casper	6	107.45	109.92	108.46	107.06	107.17
Sundance	7	107.13	111.40	111.65	100.53	110.40
Rock Springs	8	104.78	106.41	107.57	103.37	95.92
Thermopolis	9	103.17	111.90	101.81	101.60	99.90
Wheatland	10	102.56	103.22	101.81	103.95	99.87
Laramie	11	101.95	105.35	104.36	98.66	99.56
Pinedale	12	101.68	107.60	98.79	100.24	102.02
Buffalo	13	101.51	99.99	103.30	98.48	103.57
Douglas	14	101.32	100.48	99.12	100.89	108.02
Riverton	15	101.03	100.60	102.79	100.06	102.19
Cody	16	100.79	105.82	99.19	99.94	103.17
Worland	17	100.43	106.11	99.31	97.78	101.84
Newcastle	18	100.39	102.19	98.34	97.73	103.44
Rawlins	19	100.07	110.51	97.75	101.35	95.25
Cheyenne	20	100.00	100.00	100.00	100.00	100.00
Lusk	21	99.07	104.23	93.37	99.94	99.40
Greybull	22	96.38	106.23	85.63	100.81	97.60
Torrington	23	90.32	95.21	78.56	96.63	101.72

*Apparel and Recreation Indices not shown.

Source: Wyoming Department of Administration and Fiscal Control.

Average Rents by City, First Quarter 1984*

City	Average Apartment Rent	Average Trailer Lot Rent
Cheyenne	318.46	107.50
Buffalo	301.92	100.00
Casper	310.64	138.75
Cody	322.23	100.00
Douglas	340.00	117.50
Evanston	421.15	176.00
Gillette	342.16	177.50
Greybull	251.67	76.63
Jackson	405.00	99.00
Kemmerer	362.78	130.00
Laramie	335.18	110.00
Lusk	227.00	90.00
Newcastle	306.11	90.00
Pinedale	297.22	75.00
Rawlins	290.95	122.50
Riverton	321.54	115.00
Rock Springs	331.50	157.50
Sheridan	309.45	130.00
Sundance	231.67	80.00
Thermopolis	290.31	96.50
Torrington	250.00	57.50
Wheatland	236.86	95.00
Worland	271.15	115.00

*Prepared by Research and Statistics, Department of Administration and Fiscal Control.

Format

For data available at least quarterly, the last 12 quarters are printed in WQU. In this edition, published series begin with the 2nd quarter of 1981, and end with the 1st quarter of 1984. For other data series (primarily annual), the most recent observations, up to 12, are published in WQU. Most annual data series will reappear in WQU only when updated, or about every fourth issue. Quarters are calendar quarters. For example, the 3rd quarter is composed of July, August, and September. In the table headings and narratives, a particular quarter will be indicated by notation such as 2/80 (2nd quarter, 1980), 1/80 (1st quarter, 1980), and so on.

Beside each data series name is an abbreviation in parentheses. The abbreviation indicates the units (such as dollars, tons, feet, miles, etc.) of the data. The key to the units abbreviations is below.

Throughout WQU, all data are for the state unless otherwise stated. The most recent year's data should be viewed as preliminary, due to revisions. The acronymn "INA" signifies that information is not available.

The reader should be attentive to the footnotes at the bottom of pages, particularly those accompanying a data table. The footnotes help the reader to properly interpret the data, and they also indicate when more detailed (by subject or by area) data than that which is shown is available from IPR. A list of sources follows the footnotes.

Key to Units Abbreviations

MBF - Thousand Board Feet
TKWH - Thousand Kilowatt Hours
$ - Dollars
M$ - Millions of Dollars
B$ - Billions of Dollars
T$ - Thousands of Dollars
H$ - Hundreds of Dollars
ST - Short Tons
TST - Thousands of Short Tons
MCFD - Million Cubic Feet Per Day
TBPD - Thousands of Barrels Per Day
GL - Gallons
TCF - Thousands of Cubic Feet
KWH - Kilowatt Hours
TGL - Thousands of Gallons
HBBL - Hundreds of Barrels
HMCF - Hundreds of MCF Per Day
HST - Hundreds of Short Tons
$/ST - Dollars Per Short Ton

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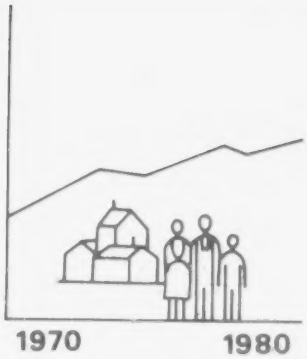

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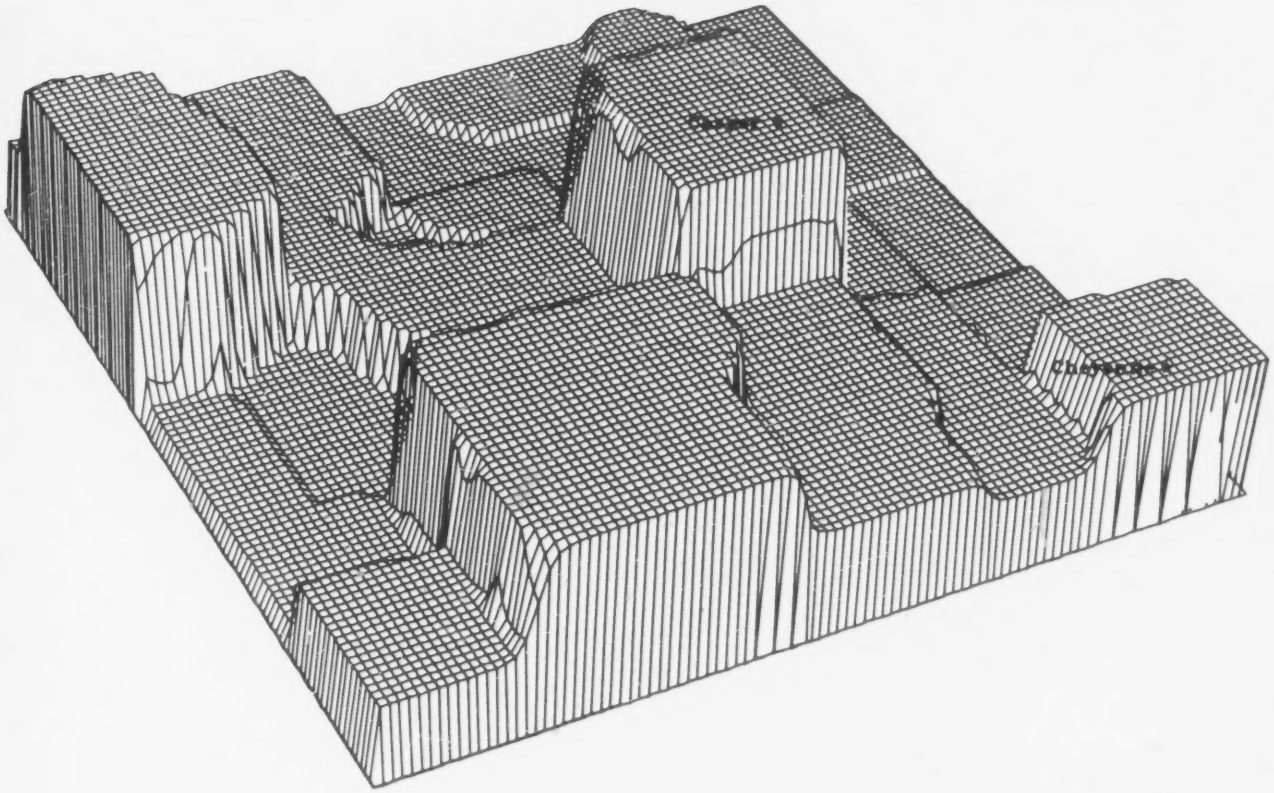
WYOMING QUARTERLY UPDATE

Fall 1984
Vol.4, No.1



IPR

Total Travel Expenditures by County, 1981

Wyoming Quarterly Update

Wyoming Quarterly Update (WQU) represents the efforts of the Institute for Policy Research (IPR) at the University of Wyoming to provide improved data access services. The data presented in WQU are assembled from secondary sources, such as government agencies and private industry. The staff of IPR greatly appreciates the ongoing cheerful cooperation of each of the data sources listed in the bibliography.

WQU provides current indicators and timely, easily accessible data. Most of the data published in WQU are updated quarterly with the most current numbers. The complete data sets from which WQU originates are maintained, together with documentation by IPR. Readers are encouraged to contact IPR to find out how to gain access to data which does not appear in the WQU. Many data series, such as gasoline sales and taxation data, span more than 30 years. Numerous other series cover 20 years or more.

Efforts to expand the subject and geographic detail (county data) of data sets will be made continuously. Featured for the second time in this edition is an industry profile. In this edition, a discussion of the travel-tourism industry is presented.

The cover of each edition features a contour map illustrating the geographic distribution of a particular variable. This edition presents a contour map depicting total travel expenditures by county for 1981.

First-time readers of WQU should refer to the "format" explanations on page 48 for keys on how best to use and interpret data presented in this publication.

For additional information, contact WQU editor S.T. Mast at:

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WYOMING SCENE

Overview and Perspective

Moving into the fall, signs of slowing in the national economy increased, although given the torrid pace of expansion experienced during the first half, the news was not altogether unexpected. Nor does it appear that the weakening signals the beginning of a new recession.

Factory production in August grew by a scant 0.2 percent, the smallest increase since last November and down significantly from the 0.9 percent growth experienced in June and July, according to Federal Reserve figures. At the same time, the Commerce Department reported that retail sales dropped 2.8 percent in both July and August, the largest two-month decline in 17 years. Retail sales in August totaled $106.2 billion, $900 million less than in July after seasonal adjustment.

Wholesale prices, sensitive to the strength of demand, also fell in August, by 0.1 percent. Labor Department analysts suggested that consumers apparently refused to pay higher prices for pork. Pork, beef, and poultry prices all dropped. Among energy products, gasoline and fuel oil experienced sharp declines.

The slowdown was also evident in the civilian unemployment rate. The August rate held steady at 7.5 percent--the same as the July rate. The number of people with jobs in August totaled about 105 million--roughly 425,000 below the level of July and 700,000 below the all-time record experienced in June, according to the Bureau of Labor Statistics.

Growth in the Gross National Product slowed to a 3.6 percent rate of growth by September, well below the pace set during the first half of the year, but still strong enough so that overall performance could be the best in decades by year's end. According to the Commerce Department, GNP growth for the year could be 7.2 percent overall, the best performance since 1951. This would compare to a 3.7 percent rate of growth in 1983 and a 2.1 percent decline during the most recent recession.

The 3.6 percent rate of growth in the Gross National Product, the total output of goods and services, was registered in the July-September quarter, for an annual total of $1.64 trillion. The report was based on data for the first two months of the quarter and estimates for September.

While slowing in the economy was becoming more evident, it was not generally being viewed with pessimism about future economic activity. Concerning the slowdown in GNP rate of growth, for instance, Commerce Secretary Malcolm Baldridge, as well as many private economists, said the slowdown was further evidence that the economy had merely shifted down to a more moderate and sustainable growth rate. They noted that even while prices for food, housing, and clothing had climbed recently, the annual inflation rate was still only 4.2 percent.

There were, moreover, signs that the slowing might be more of a temporary respite rather than a permanent state of affairs. For one thing, employment in the key hardgoods areas had not abated. For another, investment plans in hardgoods manufacturing were being upgraded, rather that reduced.

Employment in the hardgoods sector, which comprises about 60 percent of factory jobs, grew by 54,000 jobs in August, continuing the strong trend set in recent months. The automobile industry accounted for about half the gain--and barring a strike--automakers had scheduled the highest fourth-quarter output in six years. Employment gains in machinery and electrical equipment accounted for the remainder of the increase posted in August.

As for capital spending, the Commerce Department reported that such spending should rise 14.3 percent during the year to $307.6 billion. The Commerce Department was predicting an increase of 4.5 percent during the third quarter and a gain of only 0.7 percent during the fourth quarter.

There were some indications, however, that actual performance could be much better. Automakers, for instance, were set to spend $10.7 billion on capital investments, an increase of 49 percent over 1983. Another big rise was expected in electrical machinery, with a projected increase of $13.8 billion, or a 26 percent increase.

Along with the generally favorable outlook, there was bad news as well. U.S. foregin trade hit another record deficit during the April-June quarter, fueled by weaker overseas investment income and greater numbers of Americans traveling abroad. The deficit hit $24.4 billion during the second quarter, eclipsing the old mark of $19.7 billion set in the previous quarter. The nation's poor trading performance had become an issue in the presidential campaign, with challenger Walter Mondale charging that the Reagan administration had not done enough to protect American jobs against foreign imports. The latest trade report covered not only merchandise, but goods and services as well.

In Wyoming, signs of economic recovery were still slow in coming during the summer months. Sales tax collections showed some signs of improvement, though no big surges were recorded. The unemployment rate continued to drop, hitting 5.2 percent in July, down from 8.1 percent in July of 1983. However, Gordon Wolford, assistant chief of research, Wyoming Employment Security Commission, says the drop in unemployment probably cannot be attributed to expansion in the economy.

Wolford noted that in July, the total labor force size was down about 4.0 percent from July 1983. During the same period, the total number of employed persons was down about 1.0 percent. In view of these figures, Wolford says the decrease in the unemployment rate probably can be attributed to "people leaving the state in search of greener pastures," rather than to any growth in the state's economy.

Activity in both the minerals and tourism sectors remained generally sluggish. Some new drilling activity was reported, as compared to year-earlier figures, but little growth sector-wide was in evidence. At the same time, tourism officials were predicting travel visitations would probably be even to two percentage points higher than last year, although it appeared travelers were being very conservative in their spending.

S.T. Mast, IPR

# #

Fall Minerals Outlook

OVERVIEW

Although the national and Wyoming economies are showing recovery, the supply side of all the major minerals produced in the state still exceeds demand. Consequently, the prices paid for these commodities have declined two years in a row in response to lowered market demand. The decline in unit value for minerals was significant enough in 1984 that production gains in petroleum, natural gas, coal, trona, and uranium could not prevent Wyoming's total mineral valuation from declining for a second straight year. Wyoming's total mineral valuation dropped from $5.62 billion in 1983 to $5.58 billion in 1984 (about a 0.8 percent decline). Mineral valuations for these two years are summarized in table 1.

Current indications are that the prices paid for Wyoming's minerals have not bottomed out yet; consequently, mineral valuation still may not increase in 1985 despite forecast production increases in petroleum, natural gas, and coal. Any decline in total valuation, however, is likely to be rather small as in the past two years. There are indications that the value per unit of oil, natural gas, coal, trona, and uranium will start increasing again by calendar year 1986 or 1987.

Based on current activity and economic indicators, the Geological Survey of Wyoming prepared revised mineral production forecasts in September (see table 2). These forecasts indicate production of natural gas, coal, and trona will continue to increase for the next five years. Although oil production will probably increase or level off in calendar years 1984 and 1985, production will start to decline again by 1986. Uranium production, however, is expected to decrease substantially through 1987.

Gary B. Glass, State Geologist, Wyoming Geological Survey

METALS AND PRECIOUS STONES UPDATE

The nation's economic recovery is outpacing the base and precious metal mining industry, which is in its worst slump since the Great Depression. According to the industry, most of its problems are related to increased metal imports and the continued withdrawal of potentially mineralized and mineralized lands. There is no doubt that the present slump has affected exploration activity in Wyoming and has led to the cancellation of projects that could have led to the development of metal mines in the state.

Many of the exploration activities in Wyoming for metals and diamonds are fairly "low-key" compared to a few years ago. Several foreign exploration companies are exploring for massive sulfides and Troy-type, copper-silver stratiform deposits in the Sierra Madre Mountains of southeastern Wyoming. Some exploration for low-grade gold deposits is also occurring in the Phosphoria Formation of western Wyoming, and some activity is continuing at Copper Mountain and at South Pass for Archean gold mineralization. Diamond exploration in southeastern Wyoming by mining companies is minimal.

Geological Survey of Wyoming activities include exploration and research designed to locate undiscovered diamondiferous kimberlite intrusives. Recent successes include locating more than one dozen anomalous stream sediment samples in the Pole Mountain-Happy Jack area of the Laramie Range. Follow-up field work has identified a few pipe-like vegetation and topographic-anomalies that may be kimberlite intrusives. Sampling and geophysical surveys scheduled in the near future should reveal the true nature of these pipe-like anomalies.

Field work in the South Pass Region along the southern tip of the Wind River Mountains is continuing. The Geological Survey of Wyoming has completed mapping of the Radium Springs 7-1/2-minute quadrangle, which includes the historic gold-tungsten mineralized district of Lewiston. Several abandoned and inactive gold mines in the Lewiston and Atlantic City areas have also been mapped. This project will result in the publication of a geologic map of the entire South Pass supracrustal belt, as well as mine maps, assay reports, and descriptions of wall rock alteration.

The preliminary field work has indicated several areas with a potential for gold

Table 1: Mineral Valuation[1]

	1983	1984[2]
Petroleum	$3,182,388,462 ($29.32)[3]	$2,986,418,934 ($27.06)[4]
Natural Gas	$1,132,051,442 ($3.22)	$1,258,272,277 ($3.19)
Coal	$1,113,645,140 ($10.71)	$1,151,048,135 ($10.67)
Trona	$ 121,583,686 ($12.07)	$ 104,500,003 ($9.91)
Uranium	$ 45,555,994 ($21.39)	$ 50,837,054 ($16.67)
All Other Minerals	$ 29,578,806	$ 26,709,789
TOTAL	$5,624,803,530	$5,577,786,192

[1]Based on previous year's production.
[2]Preliminary statistics from Wyoming's Ad Valorem Tax Division.
[3]Value per unit of production.
[4]This is a weighted average for "stripper" oil at $29.19 a barrel and all other oil at $26.91 a barrel.

Table 2: Wyoming Mineral Production Forecast to 1988.

Calendar Year	Oil Production (millions of barrels)	Natural Gas Production (billions of cubic feet)	Coal Production (millions of tons)	Trona Production (millions of tons)	Uranium Production (millions of tons)
* 1981	122.1	455.4	102.8	11.8	4.6
* 1982	118.7	465.1	107.9	10.1	2.1
* 1983	120.9	539.7	112.2	10.5	3.9
1984	124.0	580.0	120.0	10.8	1.0
1985	125.0	620.0	126.0	10.9	0.75
1986	124.0	650.0	131.0	11.0	0.50
1987	120.0	680.0	137.0	11.1	0.20
1988	118.0	700.0	139.5	11.2	0.20

*Actual values for comparison.

mineralization. For example, hand specimen samples containing visible gold have been collected from mines in both the Lewiston and Atlantic City areas.

Some general information on the South Pass mineralized area was recently published in the Geological Survey of Wyoming Public Information Circular No. 23 entitled, "Tour guide to the geology and mining history of the South Pass gold mining district, Fremont County, Wyoming."

W. Dan Hausel, Deputy Director, Wyoming Geological Survey

URANIUM AND INDUSTRIAL MINERALS UPDATE

Uranium

The uranium mining and milling industry in Wyoming continues to shrink as production declines further and workers lose their jobs. Although 1983 uranium production (3.0 million tons) was higher than in 1982 (2.1 million tons), some of this production was from the milling of stockpiled ore from mines closed in past years.

During the summer of 1984, 17 more uranium workers were laid off at Western Nuclear's operations in Jeffrey City. This represents more than a third of Western Nuclear's 1984 work force at Jeffrey City. Thirty-one employees are now on the payroll, compared to 595 in 1979.

This summer also marked the closing of the Gas Hills camp. This town, 45 miles east of Riverton, once contained about 800 residents, most of whom worked in the uranium mines in the area. The camp was established in 1957. It was almost closed in the early 1960's, when the federal government closed uranium "buying stations." But beginning in 1971, it grew again as demand for uranium for nuclear power plants increased. The closure of Gas Hills is symptomatic of the conditions in Wyoming's uranium industry.

However, by not only holding onto some properties, but also by picking up some new properties, uranium companies are suggesting there is a future for Wyoming's uranium industry. This summer, when the U.S. Bureau of Land Management (BLM) opened areas on Green Mountain and Whiskey Peak (northwest of Lamont and southeast of Jeffrey City), mining companies staked 1,700 acres in a staking rush reminiscent of the early 1970's.

The spot market price of uranium oxide has remained steady this summer at $17.50 per pound. This compares with a 1979 high of $42.00 per pound. When adjusted for inflation, the current price is near the price which the old Atomic Energy Commission paid for uranium in the late 1950's.

The outlook for Wyoming's uranium mining and milling industry remains poor for the next few years. The demand for uranium oxide for nuclear fuel continues low in the United States since utility stockpiles are large and nuclear plant completions are few. Foreign uranium consumption has risen dramatically in the past several years. This does not, however, affect Wyoming uranium since foreign uranium oxide, particularly from Canada and Australia, is less expensive than United States production. Consequently, foreign utilities are contracting with these sources. Domestic power producers may also contract to buy foreign uranium, postponing the recovery of Wyoming's uranium industry. A slow recovery in the uranium mining industry, of less than 5 percent annual growth in production, may take place in the 1990's, following continued production declines throughout the 1980's.

Trona

The amount of trona mined in Wyoming increased to 10.5 million tons in 1983. The production of soda ash (refined trona), used primarily in the manufacture of glass, is dependent on domestic and world economies. As the use of glass bottles decreases, particularly disposable bottles, soda ash production will decrease. However, an increase in the use of plate glass and sodium chemicals will offset this decline somewhat. Continued growth of Wyoming's trona mining and refining industry may depend on the export market. With the world's largest trona resource, Wyoming can take advantage of the export market to increase production, replacing soda ash produced by the

more expensive synthetic processes. Should exports of soda ash increase, Wyoming's trona industry will grow. Otherwise, stagnant or declining production may characterize the trona mining and refining industry.

Bentonite

Wyoming's bentonite mining and refining industry has recently gone through some very hard times and is slowly recovering. Bentonite production fell 37 percent from 1981 to 1982, and declined another 1 million tons, or about 35 percent, from 1982 to 1983. This was coupled with a price reduction to around one-third of the 1981 market price for all types of bentonite products (Hynes, 1984). It is remarkable that no bentonite operation in Wyoming, which supplies about 90 percent of all domestic bentonite, has closed.

Based on 1982 figures, bentonite is used primarily for drilling mud (51 percent), taconite (iron ore) pellitizing (15 percent), foundry castings (12 percent), other minor uses (9 percent), and exports (13 percent). It is apparent that the dramatic decline in oil well drilling, the oversupply of taconite for steel making, and the reduction of factory orders for foundry products combined during the 1982 recession to reduce the total bentonite market by almost 78 percent. Drilling and steel making have carried the bentonite industry for the last two years.

Since December 1983, orders for bentonite for taconite pellitizing and foundry castings have continued to increase. At the same time, the demand for oil well drilling mud has increased only slightly. Given these conditions, bentonite production is expected to increase slowly through 1984. In the next five years, bentonite production should continue to increase, though not so dramatically as it did prior to 1981. A dramatic increase in production is not expected unless oil well drilling increases substantially--an event not presently forecast.

The price of bentonite reflects competition, with producers increasing their efficiency and laying off hourly and salaried workers to reduce costs, mostly rail, which are one to three times the sale price of bentonite at the plant (Hynes, 1984). Consequently, the cost savings derived from increased efficiency and reduced labor forces are a small part of the purchase price.

Regarding future markets, because of its low permeability and ion-exchange capacities, bentonite could work both as a sealant and an absorbant in the isolation and containment of some types of hazardous wastes. It is currently being investigated for use in the reclamation of the contaminated area near the old Union Pacific tie treatment plant in Laramie.

Other Industrial Minerals

Following the trend of better economic times, increased regional and local construction should boost aggregate (sand and gravel, including crushed rock) production in 1984 over the preceding two years. Similarly gypsum, limestone, ballast, cement, sodium, marble, and other industrial commodity producers should also produce more in 1984, as the local economy improves and demand for these products increases.

Since the construction of hardened MX missile silos at existing Minuteman sites is in doubt, the number of people looking for construction material (particularly crushable dolomitic limestone) in southeastern Wyoming has decreased.

Rocky Mountain Energy and Industrial Mineral and Chemical Company (IMC) continued outlining reserves of zeolites in southwestern Wyoming. Zeolites are naturally occurring minerals with ion-exchange properties similar to synthetic ion-exchange substances used in water softeners. Zeolites have many potential uses in industry and agriculture. Should the production of natural zeolites become more economical than the manufacture of synthetic zeolites (a situation similar to that which occurred when Wyoming's trona reserves were outlined in the 1940's and 1950's), Wyoming may have a new industry. Important zeolite reserves are present southeast of Rock Springs and in the Beaver Rim area east of Lander and Riverton.

Rocky Mountain Energy and IMC plan to mine

several thousand tons of zeolite-bearing ore and ship it to research laboratories in Illinois. The laboratories will test the material for potential uses, including water softening applications and applications related to its absorption properties. In addition to water softeners, the product may be useful in kitty litter and feedlot deodorizers.

Ray E. Harris, Uranium and Industrial Minerals Geologist, Wyoming Geological Survey

OIL AND GAS UPDATE

As of August 27, the rig count in Wyoming stood at 123, indicating a continued gradual increase in drilling activity for the state. The count a year ago was only 97. A recent article in "World Oil Magazine" predicts increased drilling in the state. The magazine forecasts wells drilled in Wyoming will total 1,650, 10 percent higher than last year's 1,500. They reported that independent producers predict a 56 percent increase in drilling activity in Wyoming for the second half of the year, while major producers predict a 5 percent decrease in second half drilling.

Exxon recently announced plans to construct the third stage of its Shute Creek gas plant in Sweetwater County, four years ahead of schedule. The schedule was accelerated to take advantage of carbon dioxide sales opportunities in Wyoming and Colorado. The plant will process natural gas with a high CO_2 content from the Riley Ridge deep gas trend on the Moxa Arch. Controversy has arisen over whether Pacific Power and Light or Utah Power and Light will supply the required electricity for the new plant. A decision on this matter will be made by the Public Service Commission.

Last fall's moratorium on noncompetitive federal oil and gas leasing is apparently over. A list of 555 parcels, covering 900,000 acres in Wyoming and 20,000 in Nebraska, was published recently and will be available for the September drawing. The U.S. Bureau of Land Management (BLM) changed its rules in an effort to prevent the abuses that led to the moratorium. Rather than a flat $75 filing fee, applicants must now pay a $1 per acre rental fee, in advance, for the lease. The BLM has also increased its staff to study the petroleum potential of federal properties and help ensure that lands with known oil and gas reserves are not inadvertently included in noncompetitive leases, as occurred in the past. They are also contracting with an independent consulting firm to review BLM procedures for determining what are known oil and gas reserves and to review the known areas delineated by the BLM.

The federal noncompetitve oil and gas leasing program, however, is still under investigation, and there is some sentiment for eventually doing away with the simultaneous drawings altogether. If this were to happen, all federal oil and gas leasing would be by competitive bids. There is an equally strong sentiment against cancellation of noncompetitive leasing; therefore, the eventual outcome is in doubt at this time.

Amoco Production Company recently announced plans to construct a gas processing plant in Bairoil, Wyoming. The plant would be used in a planned CO_2 injection project for Lost Soldier and Wertz fields. Early cost projections are between $140 million and $160 million. Construction of the plant will provide 700 to 1,000 jobs in the area.

Davis Oil Company recently indicated that the Amos Draw field in Campbell County may not have the oil reserves first thought. Industry experts had projected last summer that over 100 million barrels of oil equivalent were present. However, it now appears that the reservoir is mostly gas. The companies involved, along with Davis, are currently examining methods to best produce the field. They may re-inject the produced gas to enhance oil recovery and put off gas production for several years until the market prices improve.

Davis Oil Company also recently announced a new Powder River Basin oil discovery capable of producing 1,135 barrels of oil per day (BOPD) from the Minnelusa Formation. The well is in Campbell County near Kuehne Ranch field.

Another prolific oil producer for the Powder River Basin has been completed by Hrubetz Oil Company in Thorson field. The well tested at 1,460 BOPD from the Minnelusa

Formation. Thorson field is located south of Moorcroft in Crook County. Another offset in the field was completed recently for 1,009 BOPD from the Minnelusa Formation.

An offset well drilled by W.A. Moncrief in Teepee Flats field flowed at 6 million cubic feet per day from the Frontier Formation. This well expands this important sub-thrust field. In related news, Amoco completed an offset to its sub-thrust oil discovery, Boulder Dome field in southeastern Fremont County. The well was completed as an oil well (44 BOPD) in sub-granite Phosphoria Formation. Three more tests have been staked in the field. These two recent completions will continue to fuel interest in sub-thrust drilling.

Golden Buckeye Petroleum of Denver has completed an oil discovery in Laramie County, 1-1/2 miles southeast of Silo field. The well is flowing 170 BOPD from highly fractured Niobrara Formation. This discovery continues to enhance interest in the Niobrara play in this portion of the Denver-Julesburg Basin.

Deep drilling in the Bighorn Basin received encouragement by a recent announcement that North American Resource found gas and condensate in the Muddy and Frontier formations below 14,000 feet. This well is located on the basin axis, 12 miles northwest of Cody.

Wexpro Company tested an apparent prolific gas producer in Church Buttes field on the southern end of the Moxa Arch, 45 miles southwest of Rock Springs. The well flowed at rates from 7.5 million cubic feet per day to 13.4 million cubic feet per day from the Madison Formation below 18,400 feet. The gas contained approximately 87 percent CO_2. The Pennyslvanian Morgan Formation was also tested and flowed 11.8 million cubic feet per day of sour (high H_2S) gas from below 18,000 feet.

The Overthrust Belt remains in the news, with Samuel Gray Jr. and Associates announcing recovery of oil from the Frontier Formation at about 6,800 feet in a wildcat three miles northwest of Kemmerer. If successful, this well would continue the Overthrust Belt production trend to the north, along with Horse Trap field which is northeast of Kemmerer.

Alan J. Ver Ploeg, Petroleum Geologist, Wyoming Geological Survey

COAL UPDATE

Coal activities in the third quarter of 1984 were highlighted by developments in coal transportation. On August 1, Energy Transportation Systems, Inc. (ETSI) terminated its $3.6 billion coal slurry project, and on August 16, the Chicago and North Western (C&NW) and Union Pacific (UP) railroad companies completed construction of their new joint venture railroad line out of the Powder River Basin.

Cancellation of the controversial ETSI project, which began in the middle 1970's and had persisted despite a variety of problems that plagued the project since its inception, was no real surprise to many observers. The various problems encountered by the project included difficulties in acquisition of water, the inability to secure rights-of-way (and the failure of federal eminent domain legislation for slurry pipelines), and the lack of firm contract commitments with utility companies for coal transportation. In the final analysis, however, the project's size and cost (coupled with current economic uncertainties) also contributed to the project's demise.

The ETSI project is only one of several large coal slurry pipeline projects that have been cancelled in the last year. The Powder River Pipeline from the Powder River Basin to Minnesota and Wisconsin, and the Pacific Bulk project from Utah to West Coast export terminals, were also cancelled. Other slurry projects that have been proposed in the United States, including the Aquatrain Project that would move Wyoming and Colorado coal to California via liquid carbon dioxide or saline water, are proceeding slowly because they face problems similar to those encountered by ETSI. At present, the 273-mile long Black Mesa Pipeline in Arizona is the only operating major coal slurry pipeline in the United States.

The new C&NW/UP rail line is now in direct competition with Burlington Northern (BN) for coal transportation contracts in parts of the Powder River Basin. The new rail line was completed about three months ahead of schedule for about $370 million, 20 percent less than the estimated $460 million. The construction

costs were reduced by contract bidding at a favorable time. At present, the new line is moving coal from the Jacobs Ranch Mine and the recently opened North Antelope Mine to Arkansas Power and Light Company's Independence and White Bluff power plants. Deliveries to Wisconsin Public Service Corporation's Weston Plant in Rothschild, Wisconsin, will begin this fall. This coal will come from the Coal Creek and Black Thunder mines. C&NW/UP signed an additional coal transportation contract with Northern States Power one week before the rail line was completed. This latest contract calls for transportation of about 1 million tons of coal per year from the Rochelle Mine (currently under construction) to the utility's power plants in the Minneapolis-St. Paul, Minnesota, area. By next year, the new line should be hauling 12 million tons of coal per year, or about three unit trains per day. Despite this new competition for transportation contracts, a recent economic study by the University of Wyoming's Scott Atkinson concluded that rail rates would remain excessively high and would limit the production of Wyoming coal mines by more than 10 million tons per year.

Other notable coal developments in the state this summer centered on increased activity in the southern Powder River Basin (southern Campbell County and northern Converse County). Thunder Basin Coal Company recently hired 40 additional workers for its Coal Creek and Black Thunder mines. This hiring almost offsets the 50 employees that were laid off eight months ago. North Antelope Coal Company recently hired 50 new people at the state's newest coal mine, North Antelope. The mine now has 130 employees and by the end of the year should have the capability of producing 5.5 million tons per year. Construction has resumed on NERCO's Antelope Mine in Converse County, with a construction work force of 180 expected next summer. NERCO also announced that Jacobs Engineering Group, Inc. of Pasadena, California, had been awarded an engineering services contract for the mine's coal handling and loadout facility. Rochelle Coal Company, a joint venture of Powder River Coal Company (a wholly-owned subsidiary of Peabody Coal Company) and Paneastern Coal Company (a wholly-owned subsidiary of Panhandle Eastern Pipeline Company), recently filed an application for a coal mine construction permit with the State of Wyoming's Industrial Siting Administration. Construction of the 11-million-tons-per-year mine is planned for the spring of 1985.

In coal market news, Portland General Electric recently announced that it would reactivate the Carty No. 1 Plant at Boardman, Oregon. This coal-fired power plant had been on standby for the last year. Portland General's decision is in response to sharp decreases in available hydroelectric power generation in the Columbia River Basin and to a doubling in the price of hydroelectric power. Before the plant went on standby, AMAX Coal Company supplied coal to the Carty No. 1 Plant from its Wyoming coal mines. It is not known if AMAX will continue to supply this plant, but it appears that the hydroelectric power surplus that has existed in the Pacific Northwest for the last two years may be ending. This fact, combined with the cancellation of several nuclear power plant projects in this region, may provide future markets for Wyoming coal.

Federal coal leasing remains on hold, with no resumption anticipated before July 1985 at the earliest. The Department of the Interior has decided to conduct more environmental studies on the effects of its revised leasing program. A draft of the new environmental impact statement is slated for January 1985. In the meantime, the Interior Department will only process applications for emergency leases and preference right leases.

Richard W. Jones, Coal Geologist, Wyoming Geological Survey

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Fall Agricultural Outlook

The agricultural economy remains a troubled one as we move into the fall of 1984. From farmer and rancher to agribusiness, to farm leader, to policymaker, the whole farm sector is concerned about the widespread financial stress that has not alleviated itself in 1984. Peering into a somewhat cloudy crystal ball, a number of factors suggest some price improvement in the livestock sector this fall, but farm financial stress will continue during the coming year.

In looking ahead to the fall of 1984 and into 1985, it is important to keep in mind the scenario from a year ago. As we moved into the fall last year, the mid-section of our nation was experiencing one of the worst droughts in this century. Feed grain prices were escalating in response to a projected 4.2 billion bushel corn crop, the smallest U.S. crop since 1965. Higher grain prices and abundant supplies of hogs and other red meats forced feeder cattle prices substantially below the cost of production, placing many Wyoming livestock producers in a serious financial pinch.

The current situation is much improved over 1983. Prospects are good for increased feed and forage production as we move into the fall of 1984. The USDA currently estimates 1984 corn production at 7.7 billion bushels, well above the 4.2 billion bushels of last year. Although below the record 8.2 billion corn crop of 1982, this year's increased production will be adequate to replenish corn stocks for the coming year.

The mid-year USDA cattle inventory report estimated there were 122.0 million head of cattle and calves on farms as of July 1st in the U.S. This was down only slightly from 1983, but confirms the trend of declining cattle numbers that will likely continue for another year or more. The 1984 calf crop is down 2 percent from last year. This marks the fourth year in a row of consecutively smaller calf crops. With the smaller cow herd, it appears likely the size of the calf crop will continue to decline in 1985.

Prospects

Fed cattle prices should remain above year-earlier levels throughout the fall and are expected to strengthen as we move into 1985. Declining hog slaughter will continue to support meat prices above a year earlier. Poultry production may move higher this fall, but will not have a dampening effect on red meat prices. Ample supplies of feed grains and wheat, together with strengthening fed cattle prices, are major contributing factors for stronger feeder cattle prices this fall.

The average price for all weights of choice feeder steers at major markets should be 15 percent to 20 percent higher than the depressed $55 per cwt. of last September. Lower calf supplies should help boost calf prices from the $64.50 per cwt. average for 400-500 pound choice steers last fall, perhaps by as much as 10 percent to 15 percent. Good fall moisture and improved native pasture and winter wheat pastures in the southwest could stimulate sufficient demand for lighter calves to push prices over $75.00 per cwt.

The longer term outlook for cattle prices, especially for calves and breeding stock, points to higher prices. Both calves and yearling feeder cattle usually are priced higher per pound than slaughter cattle during the expansion phase of the cattle cycle. This phase is expected to begin in the next one or two years.

Robert D. Carver, University of Wyoming

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Job Openings Outlook

CABINETMAKERS

In Wyoming, there is a shortage of skilled cabinetmakers. The job outlook depends on the demand for cabinets and other housing fixtures, the increasing growth of pre-fabricated work, and general economic conditions. Although the recent decline in new housing construction has reduced the demand for cabinetmakers, remodeling projects and increased interest in "personalizing" designs for work and living environments are creating an increase in the amount of work for cabinetmakers. Because many cabinetmakers work directly with the construction business, an improvement in the construction industry will result in more steady work. Prospects are best for journeymen who are able to deal effectively with the public.

Currently there are around 90 cabinetmakers in Wyoming. Cabinetmakers are fairly evenly distributed with the population. Many are self-employed and act as small business owners in addition to doing the work themselves. Experienced cabinetmakers earn between $8.00-$9.00 per hour.

In Wyoming, most learn the trade informally on the job working with an experienced cabinetmaker. Training usually lasts up to four years. Nationally, there are three-year apprenticeship programs. Apprenticeship applicants with courses in woodshop, drafting, and math are favored for limited openings.

INSURANCE SALESPEOPLE

There is a shortage of qualified insurance salespeople in Wyoming. The employment outlook depends mostly on the demand for insured protection by industry and the general public. Because this occupation is much like starting a new business, requiring time to establish a good clientele, many salespeople leave the field during the first year. Therefore opportunities are favorable for beginners because of the high first-year turnover. Employers report that opportunities are better in insurance companies that sell many different types of insurance. Salespeople who show unusual sales ability and leadership may advance to managerial positions. Some establish their own independent agencies or brokerage firms.

Insurance salespeople sell policies to individuals and businesses for protection against future losses and financial pressure. They analyze the client's needs and resources, and recommend a specific amount and type of insurance. Salespeople usually sell one or more of the three basic types of insurance: life, property-liability (casualty), and health. All insurance salespeople must be licensed in Wyoming. To obtain a license, an individual must be at least 19 years of age, have an appointment from an insurance company or insurance agency that is authorized to do business in Wyoming, and pass a written examination. Individuals are advised to study the "Western States Manuals," as the insurance tests are developed specifically from these manuals.

Employers prefer to hire individuals with at least two years of post-secondary training. Previous experience working with people is an asset in this field. Company personnel dealing with commercial insurance or financial planning need a four-year degree. Most companies provide additional on-the-job training, which can consist of training at the insurance company's home office or at the agency.

Wages for beginning insurance salespeople vary according to company policy. Salespeople are paid either a base salary plus commission or just straight commission. Beginning salespeople can earn between $12,000-$18,000 per year. After a clientele has been established, experienced salespeople can earn from $35,000-$60,000 per year.

For additional information contact Diane M. Latos or Juanita M. Ackerman, Wyoming Career Information System, Student Educational Opportunity, University of Wyoming, 766-6189.

Diane M. Latos, Wyoming Career Information System

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Wyoming Coincident Indicators Index

The Wyoming economy has recently ended a 19-month downturn. Economic activity in the state as measured by the Wyoming Coincident Indicators Index (WCII), declined from December 1981 to July 1983. From the low point in July 1983, the index has shown steady improvement, indicating perhaps that the recession in Wyoming has ended.

The WCII, computed by the Division of Research and Statistics, Department of Administration and Fiscal Control (DAFC), is derived using economic variables whose movements generally coincide with movements in the overall economy. It is a composite index which uses four economic variables: (1) Wyoming total sales and use tax collections in 1972 dollars; (2) Wyoming state total insured wages paid in 1972 dollars; (3) Wyoming state total insured employment; and (4) an industry index comprised of one economic variable from each of Wyoming's three major industries. The three industries are agriculture, mining, and tourism, and the respective variables are: (1) prices received by Wyoming farmers and ranchers for all commodities; (2) Wyoming drilling rig count; and (3) Wyoming motor fuel gallonage sales.

The historic period over which the index is calculated is January 1972 to March 1984. Presented on the following page are two plots of the index, one which uses seasonally adjusted data, and one which uses unadjusted data. The unadjusted index is presented to show the radical seasonality of the Wyoming economy. The more important index, and the one with which all further analysis and description will be concerned, is the index which uses seasonally adjusted data. In this index, turns up and down are caused by factors other than seasonality. The base month is January 1972, which has an index value of 100. An index value doesn't have any meaning in and of itself but is valid only when compared to another value from the same index.

For the most part, the Wyoming economy grew from 1972 until December 1981, ignoring the U.S. recessionary periods of 1974 and 1980. From December 1972 to December 1981, the index registered a gain of 52.36 index points, or an increase of 50 percent. The increase was caused mainly by increases in employment and wages, which, as everyone knows, was due mainly to a boom in the energy related sectors. But after tremendous increases in the Wyoming economy from 1972 to 1981, declines were registered in 1982 and the first half of 1983. From December 1981 to July 1983, the index registered a decrease of 19.32 index points, or 12.30 percent. Over this time period all variables registered declines, with the major contributors being employment, wages, and sales tax collections. Again, these decreases reflect Wyoming's dependency on the energy sector and it's dependence on the U.S. economy. During this time period, the U.S. economy was in a recession, decreasing demand for Wyoming's energy products. This in turn caused layoffs and cutbacks in Wyoming's mining sector. The national recession also hurt Wyoming's tourism industry and agriculture prices were also down during 1982 and 1983. Since the low in July 1983, however, the index has improved steadily, increasing 9.54 index points, or 6.92 percent, by February 1984. This increase was led by increases in employment, while most other variables showed improvement.

While this index can not be used as a predictor of the state's economy as yet, it does imply that economic activity in Wyoming has been improving steadily since July 1983, and that perhaps the downturn which occurred in 1982 and 1983 is over. It is interesting to note that the Wyoming economy lagged U.S. economic activity through the latest U.S. recessionary period. The Wyoming economy, as measured by the WCII, peaked in December 1981, while the U.S. economy, as measured by the National Bureau of Research, peaked in June 1981--a lag of six months. The trough in the Wyoming business cycle occurred in July 1983, while the low in the U.S. economy occurred in November 1982--an eight-month lag. This is an indication that the Wyoming economy does indeed lag behind the U.S. economy, and that perhaps by keeping track of the U.S. economy, we can predict the highs and lows in the Wyoming business cycle. The evidence is nowhere near conclusive yet, but this situation will be continually studied by the Division of Research and Statistics.

Steve Sommers, DAFC

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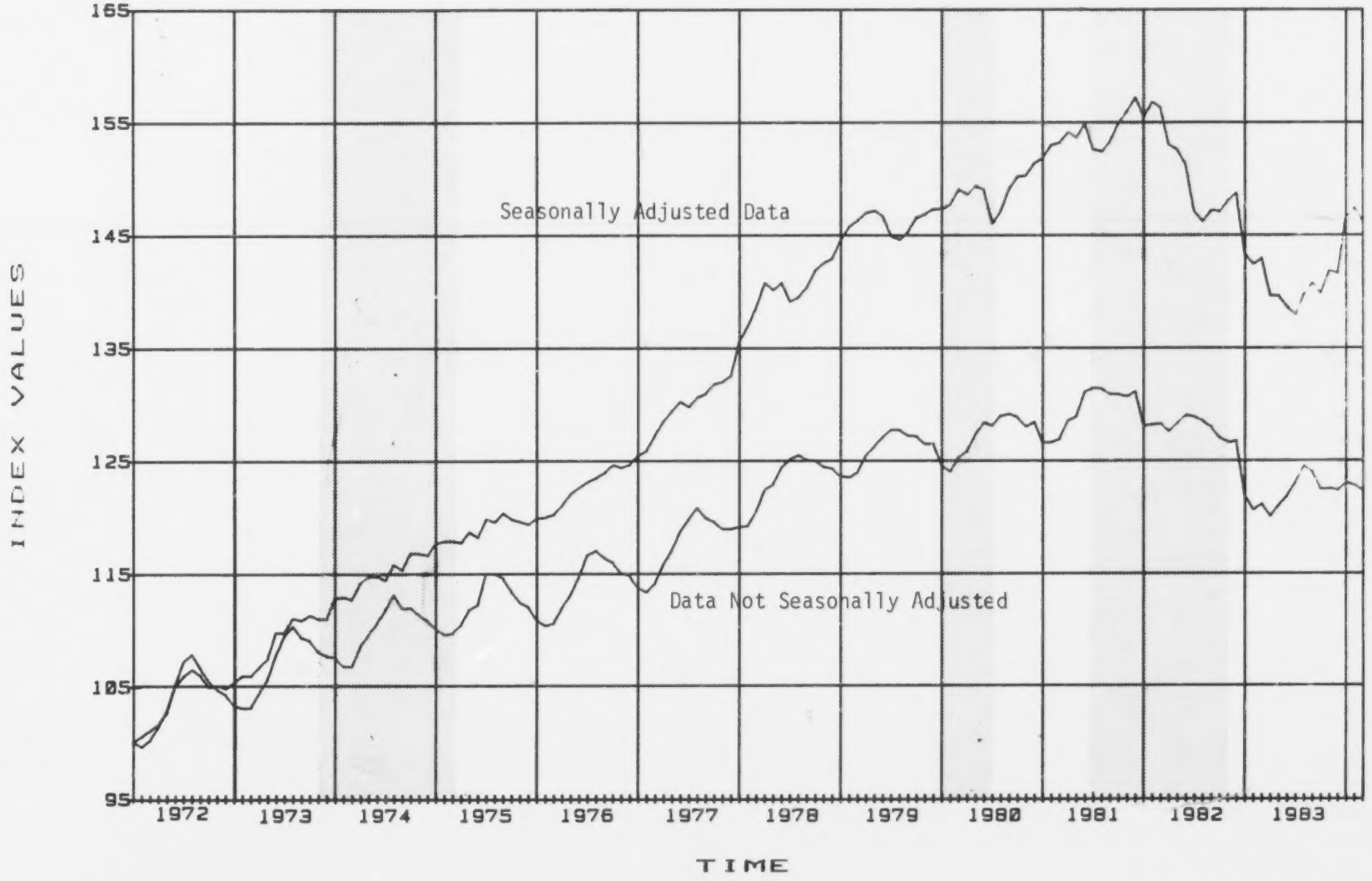
WYOMING COINCIDENT INDICATOR INDEX

JUNE 19 1984



Shaded Areas Represent U.S. Recessionary Periods.

INDUSTRY PROFILE

A Wyoming Travel Review

Wyoming is a state of diverse recreational opportunities. From the painted mesas of the Red Desert to the majestic towers of the Teton Range, the state's natural wonders attract millions of visitors each year. Indeed, travel-tourism activities comprise the state's second most important economic sector, eclipsed in importance only by the powerful mining sector.

The purpose of this article is to describe some of the state's important tourist attractions. Included is an assessment of the economic impacts of travel-related activities within various regions of the state. For the purposes of discussion, the state is separated into four regions: northern, central, southern, and western Wyoming.

Northern Wyoming

For the purposes of this discussion, the northern Wyoming region will include Crook, Weston, Campbell, Johnson, Sheridan, Hot Springs, Washakie, Big Horn, and Park counties. The region includes such important recreational areas as the Black Hills National Forest, the Thunder Basin National Grasslands, the Bighorn National Forest, the Bighorn Canyon National Recreational Area, and the Shoshone National Forest.

The northeastern corner of the state is dominated by the Black Hills National Forest. The area is so named because of the thick stands of ponderosa pine that predominate. In addition to its recreational attributes, the forest supports an important regional timber industry.

Due to its relatively lower elevation, the Black Hills area is ecologically different from any other area of Wyoming. At 3,125 feet above sea level (the lowest elevation in the state), it is one of the few places in Wyoming where oak and birch trees are found. Outdoor activities include hiking, camping, hunting, and trout fishing. Several ghost towns that sprang up during the gold rush years of the 19th century are popular destinations for hikers.

The Black Hills region is home to the largest congregation of whitetail deer in the state, along with large numbers of wild turkeys. A small elk herd also resides in the dense timber, along with an occasional mule deer.

Fishing opportunities are afforded on Sand Creek, Cold Springs Creek, Redwater Creek, Beaver Creek, and the Belle Fourche River. Lake Cook is another favorite fishing spot, host to rainbow, brook, and german brown trout.

Devil's Tower, the nation's first national monument, looms above the Belle Fourche River near the town of Hulett. The tower rises 1,280 feet above the valley floor, to a total height of 5,117 feet above sea level. The tower, composed of cooled and crystallized igneous materials, is 1,000 feet across at its base and 275 feet across at its top. It is the tallest rock formation of its kind in the United States.

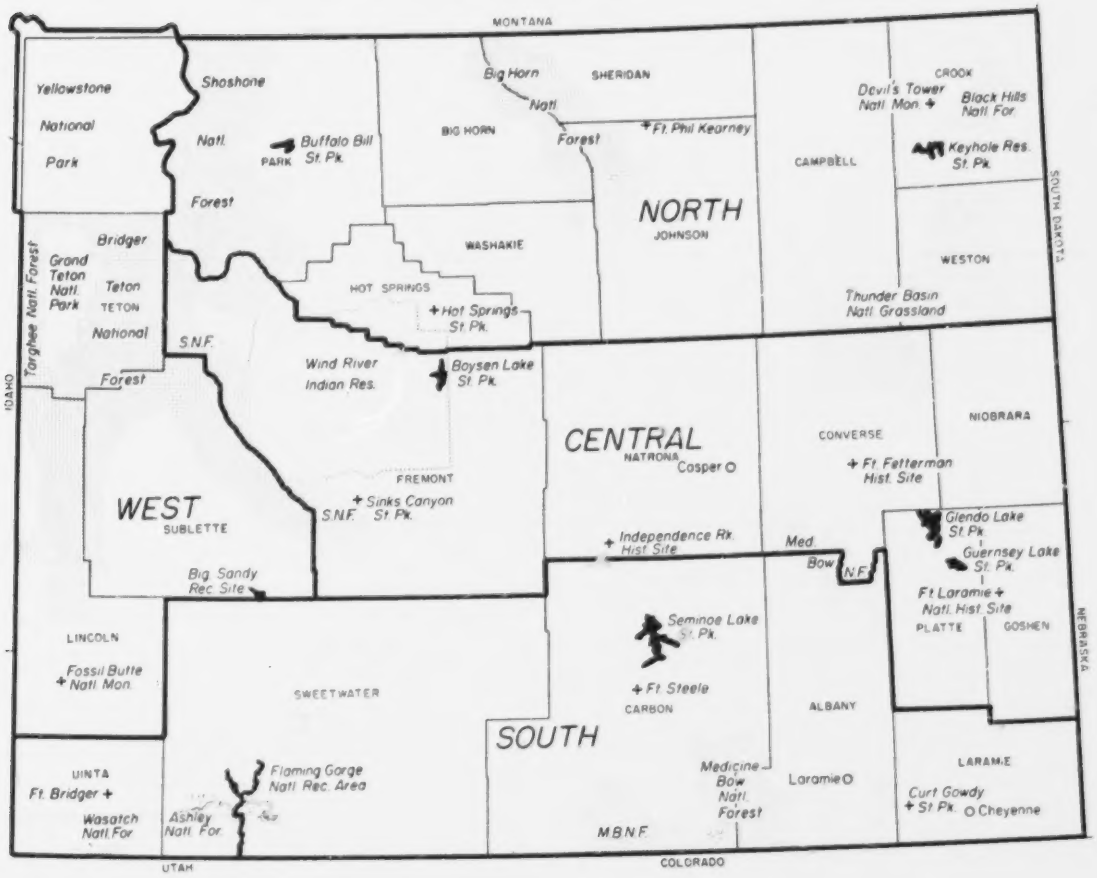
For centuries, the tower played an important role in the folklore and legends of local Indian tribes. Later, it became an important landmark to explorers and pioneers pushing west through the Black Hills.

The Devil's Tower area also marks a kind of demarcation line between the forests of the Black Hills and the grasslands spreading into the Powder River Basin. Every ecological step in the process of establishing a forest is present, from bare rock to pine trees.

To the west of the Black Hills sprawls the 2-million-acre Thunder Basin National Grassland. The area supports a variety of wildlife, including one of the largest pronghorn antelope herds in the world.

Keyhole State Park is another important recreational area in northeastern Wyoming, providing fishing, boating, hiking, and picnicking activities. The park is an important recreational outlet for citizens living in the community of Gillette, Wyoming, located approximately 25 miles to the west. The Keyhole Reservoir offers some of the best walleye fishing in the state, along with many other

Location Map of Selected Tourist Attractions
in Wyoming by Region



warm-water species.

Inyan Kara is a prominent and historic landmark in Crook County, rising 6,600 feet above sea level. General George A. Custer camped at the foot of the mountain in 1874; two members of his troop are buried on a hillside east of the campsite.

The Bighorn National Forest, located in northcentral Wyoming, is in the heart of the Big Horn Mountains. These are the first mountains many travelers from the East and Midwest encounter on their way to Yellowstone. Many natural features in the region bear the name "Big Horn," including a town, a mountain range, a basin, a county, a lake, and a river. All owe their name to the bighorn sheep, which is distributed throughout the area.

The Bighorn National Forest is about 80 miles north to south and 30 miles east to west, encompassing 1,121,541 acres. Fifty-eight campgrounds and picnic areas are located in the forest, along with the Meadowlark Ski Area. Many snowmobile trails also have been charted for winter recreation.

The Bighorn National Forest and its environs support a large big game population. According to estimates made by the U.S. Forest Service and the Wyoming Game and Fish Commission, 10,000 mule deer, 4,000 elk, 140 black bear, and 70 bighorn sheep inhabit the area. In addition, virtually all the streams and lakes in the area furnish trout fishing opportunities, with rainbow and brown trout the most abundant species.

The Bighorn National Forest includes the 136,905-acre Cloud Peak Wilderness. The entire area lies above 8,500 feet in elevation and includes 256 lakes and 49 miles of streams. Eighty-one miles of trails lead to 10 backcountry campgrounds.

The Bighorn Canyon National Recreation Area provides spectacular scenery and abundant wildlife. The 31,000-acre Pryor Mountain Wild Horse Range, the first ever established by the Bureau of Land Management in 1968, is home for more than 200 wild horses. The Bighorn Canyon National Recreation Area features a variety of outdoor activities, including hunting, boating, fishing, camping, and hiking.

Lake DeSmet, located seven miles north of Buffalo, is another popular recreation area. Named in honor of early missionary Father Pierre

Jean DeSmet, the lake has been enlarged through development and provides millions of rainbow trout eggs used to stock other Wyoming lakes and streams.

Johnson and Sheridan counties are also the location of many famous Old West sites, including Fort McKinney, the Hole-in-the-Wall, and the Bradford Brinton Memorial Ranch. Sheridan County is a nationally known dude ranch center. The nation's first dude ranch, Eaton Brothers, is located at Wolf, about 18 miles west of Sheridan.

West of Cody lies the Shoshone National Forest, at the threshold of Yellowstone National Park. The area was set aside by proclamation of President Benjamin Harrison in 1891. Originally called the "Yellowstone Park Timberland Reserve," the forest was set aside in order to protect the timber resource in the public domain and has the distinction of being the first national forest in the United States. With its 2.5 million acres, the Shoshone National Forest is one of the largest national forests in the nation.

The forest is home to many kinds of exotic wildlife, including mountain goats, bighorn sheep, grizzly bears, and bald eagles. The forest is also a major source of water for surrounding communities and ranches. Many dude ranches and outfitting services depend for their livelihoods upon the natural resources of the Shoshone National Forest.

The Cody area is also home of the famous Buffalo Bill Historical Center, with its fine collections of antique firearms, original western paintings, and Indian artifacts.

The Wind River Canyon on U.S. 20 between Thermopolis and Shoshoni in northcentral Wyoming is a veritable stratigraphic chronicle of geologic history. Over many centuries, the Wind River has carved a channel more than 2,000 feet deep which divides the Owl Creek and Bridger mountains.

Boysen State Park is another popular attraction in the Thermopolis area, offering a range of water sports activities. Much of the park lies within the boundaries of the Wind River Indian Reservation.

Table 3: Visitations to Tourist Attractions Located in Northern Wyoming (Visitor Days); Percent Change 1980-1983.*

	1980	1981	1982	1983	% Change 1982-1983	% Change 1980-1983
National Areas						
Shoshone National Forest	872300	987500	957900	972500	1.5%	11.5%
Big Horn National Forest	1275800	1568500	1485500	1555800	4.7%	21.9%
Black Hills National Forest	88700	122300	102300	123000	20.2%	38.7%
Thunder Basin National Grassland	42800	44800	44800	43500	-2.9%	1.6%
Devil's Tower National Monument	41017	57687	53137	53830	1.3%	31.2%
State Parks						
Buffalo Bill	228730	235344	201050	224882	11.9%	-1.7%
Hot Springs	INA	INA	INA	434790	INA	INA
Keyhole Reservoir	378667	365382	569833	522561	-8.3%	38.0%
Historic Sites						
Fort Phil Kearney	2566	2660	4881	2671	-45.3%	4.1%
Connor Battlefield	INA	INA	3935	2865	-27.2%	INA

Sources: Wyoming Recreation Commission; U.S. Forest Service; National Park Service.

*NOTE: A visitor day consists of 12 visitor hours only; estimates for Devil's Tower computed by dividing total visitor hours by 12; Black Hills visitation for portion in Wyoming only;State Parks/Historic Sites for May-September only.

Total travel expenditures in the nine-county area that makes up the northern Wyoming region amounted to $123,345,000 in 1981, according to U.S. Travel Data Center figures. The total travel-generated payroll during the same period for the region was $23,001,000, accounting for a total of 3,521 jobs.

Central Wyoming

For the purposes of discussion, the central Wyoming area shall consist of Goshen, Platte, Niobrara, Converse, Natrona, and Fremont counties. Much of the spirit of the Old West is captured within this area, including such historic sites as the Oregon Trail, Fort Laramie, Fort Caspar, Fort Fetterman, South Pass, and Fort Washakie.

The Oregon Trail is particularly prominent in the region, including a variety of historic markers, museums, and trail sites. The trail exists at its present site because of its proximity to the North Platte and Sweetwater rivers, and because of its natural gradual grade to the "shining mountains" at South Pass. During the 27-year period of mass emigration beginning in 1841, the Oregon Trail was known by many names, including the "California Road," the "Mormon Trail," and the "Great Platte River Road." Historic Fort Laramie, located near the town of Fort Laramie at the confluence of the North Platte and Laramie rivers, is another important historic site in the area. It was the first garrisoned post in Wyoming and an important early trading post.

The Laramie Peak District of the Medicine Bow National Forest is an important forested area in the region. The forest was created by President Theodore Roosevelt on May 22, 1902.

The origin of the name "Medicine Bow" is presumed to be associated with the fact that Indian tribes used the mountain mahogany of the forests for making bows. Tribes assembled in the area to cure ills and to fashion weapons. The term "Medicine Bow" is believed to be an amalgam of the terms "making medicine" and "making bows."

Since 1902, the boundaries of the forest have undergone many changes. In 1935, the

Table 4: Visitations to Tourist Attractions Located in Central Wyoming (Visitor Days); Percent Change 1980-1983.*

	1980	1981	1982	1983	% Change 1982-1983	% Change 1980-1983
National Areas						
Fort Laramie National Historic Site	11323	15242	11912	12181	2.3%	7.6%
State Parks						
Boysen Lake	297368	346099	587271	497571	-15.3%	67.3%
Sinks Canyon	65411	69141	69796	63298	-9.3%	-3.2%
Glendo Lake	446911	449326	504802	395771	-21.6%	-11.4%
Guernsey Lake	358128	317819	294523	310649	5.5%	-13.3%
Historic Sites						
South Pass City	4410	5152	4123	5125	24.3%	16.2%
Independence Rock	INA	INA	3935	6675	69.6%	INA
Fort Fetterman	986	1335	3464	1311	-62.2%	33.0%

Sources: Wyoming Recreation Commission; U.S. Forest Service; National Park Service.

*NOTE: Estimates for Fort Laramie computed by dividing total visitor hours by 12; State Parks/Historic Sites for May-September only.

Laramie Peak District south of Douglas became an important new unit. Laramie Peak is the most important landmark, rising 10,274 feet above sea level. The peak was regarded as a reliable weather indicator, as well as an important guidepost, for early fur traders, soldiers, and emigrants along the Oregon Trail. Improved picnic and camping areas, as well as primitive areas, are located throughout the region.

The Wind River Indian Reservation, located in west-central Wyoming, is an important part of the culture and economy of Fremont County. For the most part, members of the Shoshone tribe occupy the south-central, western, and northern portions of the reservation, while members of the Arapahoe tribe live mainly in the southeastern portions in the towns of Ethete, Arapahoe, and St. Stephens. Oil and gas leases to commercial operators account for the largest share of annual income for both tribes. The main tourist attractions on the reservation are the annual pow-wows held at Fort Washakie, Crowheart, Ethete, and Arapahoe. In addition, the grave of Sacajawea, guide for the Lewis and Clark expedition, is located west of Fort Washakie, while the grave of Chief Washakie is located in the old military cemetery along the Wind River directly behind the agency.

Portions of the Shoshone National Forest also are located in the region. The Washakie Wilderness Area, composed of what formerly had been the South Absaroka Wilderness and Stratified Primitive Area, is located north of Dubois in the volcanically-formed Absaroka Mountains. Noted for its rugged terrain, the Washakie Wilderness is also known for its large collections of petrified woods.

The Fitzpatrick Wilderness Area is located in Wyoming's true "high country." Along the ridges of the Continental Divide, clustered near 13,804-foot Gannett Peak, are the seven largest glaciers in the United States outside of Alaska. The 175,000-acre Fitzpatrick Wilderness Area is renowned for its many alpine lakes and excellent trout fishing.

The smallest of Wyoming's wilderness-type areas--the 70,000-acre Popo Agie Primitive Area--is also located in the region. The area contains over 100 lakes and is characterized by its extremely rugged terrain.

Total travel expenditures in the six-county area that makes up the central Wyoming region amounted to $194,682,000 in 1981, according to U.S. Travel Data Center figures. The total travel-generated payroll during the same period for the region was $38,996,000, accounting for a total of 5,157 jobs.

Southern Wyoming

Interstate 80 across Laramie, Albany, Carbon, Sweetwater, and Uinta counties in southern Wyoming follows a route that earlier had been followed by the Overland Trail and the Transcontinental Railroad.

At the eastern end of the route is the city of Cheyenne, the capitol of Wyoming, and the site of many attractions. The gold-leaf dome of the State Capitol Building is prominent on the Cheyenne skyline. The Ninth Territorial Legislative Assembly authorized construction of the building in 1886, and on May 18, 1887, the cornerstone was laid. Guided tours are conducted from June 1 to September 1.

Other attractions in Cheyenne include the Wyoming State Museum, the world's only museum to collect first edition postage stamps, and the Cheyenne Frontier Days Old West Museum. Cheyenne Frontier Days, the world's oldest and biggest rodeo, takes place during the last full week in July of each year.

In the foothills of the Laramie Mountains between Cheyenne and Laramie is Curt Gowdy State Park. The 1,645-acre park area was established in 1971 through a lease agreement with the city of Cheyenne and the Boy Scouts. Two major reservoirs, Crystal and Granite, are located in the area and provide a variety of water sports opportunities.

Adjacent to the park is the Pole Mountain District of the Medicine Bow National Forest. Popular sites in the forest include the Happy Jack and Vedauwoo camping areas, and the Lincoln Monument (which marks the highest point on Interstate 80). Just south of the Vedauwoo area is the Ames Monument, a 60-foot high

granite pyramid tribute to Oliver and Oakes Ames, promoters of the Transcontinental Railroad. The monument was built in 1881-1882 at Sherman, Wyoming, the spot where all early trains stopped to be checked before descending the steep grades in both directions.

The city of Laramie is home of the University of Wyoming, the state's only four-year institution of higher education. The 735-acre campus consists of 30 native stone buildings and many well-tended lawns and gardens. Highlights of the campus include the Geological Museum, the Rocky Mountain Herbarium, and the Fine Arts Center.

West of Laramie in the town of Medicine Bow is the famous Virginian Hotel, named in honor of author Owen Wister's novel The Virginian. Nine miles east of Medicine Bow is the Como Bluffs dinosaur site, one of the most renowned fossil beds ever discovered.

Interstate 80 west across the state follows the route of the Overland Trail. On Rock Creek near Arlington, the remnants of a stage stop and the oldest log cabins in Wyoming can be seen.

The Medicine Bow Forest west of Laramie offers a variety of all-season activities, including hunting, fishing, hiking, and skiing.

The Snowy Range Division of the Medicine Bow National Forest is the largest of the forest's four divisions. The Snowy Range Division and the Sierra Madre Division to the west across the North Platte Valley combine to form a vast, unspoiled forest recreation area that offers almost unlimited year-round outdoor opportunities. The Snowy Range Division also supports an active timber industry. Wildlife in the area includes black bear, bobcat, mountain lion, elk, and mule deer.

Situated among snow-capped peaks that rise to 12,000 feet, Wyoming 130 through south-central Wyoming provides some of the most scenic vistas in the state. Recreational opportunities abound, including campgrounds, picnic areas, and fishing streams. In Saratoga, on the western flank of the mountains, the visitor finds such attractions as the Old Baldy Country Club and the Saratoga Hot Springs.

The landscape of southwestern Wyoming is

Table 5: Visitations to Tourist Attractions Located in Southern Wyoming (Visitor Days); Percent Change 1980-1983.*

	1980	1981	1982	1983	% Change 1982-1983	% Change 1980-1983
National Areas						
Medicine Bow National Forest	924300	1043400	974500	750600	-23.0%	-18.8%
Ashley National Forest	249318	278505	269847	293805	8.9%	17.8%
Wasatch National Forest	49864	55701	53969	58761	8.9%	17.8%
Flaming Gorge National Recreation Area	147327	155502	11366	100949	-9.4%	-31.5%
State Parks						
Seminoe Lake	43871	42603	88074	80229	-8.9%	82.9%
Curt Gowdy	198275	187493	200676	265183	32.1%	48.7%
Historic Sites						
Fort Bridger	23173	23442	14646	13733	-6.2%	-40.7%
Fort Steele	1279	663	1606	1296	-19.3%	1.3%

Sources: Wyoming Recreation Commission; U.S. Forest Service.

*NOTE: Medicine Bow visitation does not include Thunder Basin National Grassland; data for Ashley and Wasatch represent a percentage of the total for Wyoming Region 4 forests; State Parks/Historic Sites for May-September only.

markedly different from the forested areas of the southeast. Wide open spaces predominate, typified by the Red Desert-Great Divide Basin area between Rawlins and Rock Springs. The area of Raw'ins, Wyoming, includes several points of interest, including the old Wyoming State Prison. Located on the southern edge of the famous Sweetwater Jade fields, Rawlins is also known for its rock shops and jewelry stores, featuring articles of Wyoming jade, agate, and petrified wood.

Thirty-four miles northeast of Rawlins is Seminoe State Park, an area encompassing giant white sand dunes, vast tracts of sagebrush, thousands of pronghorn antelope, and sage grouse. Established around the Seminoe Reservoir and Dam in 1965, the park includes the Seminoe Mountains, Seminoe Lake, and the "miracle mile," a stretch of the North Platte River famous for its lunker rainbow trout.

The vast Great Divide Basin is a "hole" in the Continental Divide that drains toward neither the Pacific or Atlantic oceans--only into itself. While the first impression is of a barren and desolate land, the area actually contains a fascinating variety of flora and fauna. Elk and deer are common in the Green Hills and in the Sand Dunes region on the basin's western fringe. Pronghorn antelope abound, particularly in the Red Desert area north of Wamsutter. The basin was also home to the last known herd of wild bison in Wyoming and wild horses still can be found.

The Flaming Gorge National Recreation Area is located south of Rock Springs. Established by Congress in 1968, this recreation area in southwestern Wyoming and eastern Utah is comprised of 201,000 acres of scenic land surrounding Flaming Gorge Lake. The lake, fed by the Green River, is 90 miles long with approximately 375 miles of shoreline. Most of the lake is located in Sweetwater County, Wyoming.

The lake offers superb trout fishing year-round. Boat launching ramps located close to campgrounds provide convenient access to points along both sides of the lake.

Further west in Uinta County is the Fort Bridger State Historic Site. The site allows visitors to experience a nostalgic return to the days of a frontier military post, as re-created at Fort Bridger. Special celebrations are plentiful, including re-creations of mountain men rendezvous.

Total travel expenditures in the five-county area that makes up the southern Wyoming region amounted to $307,641,000 in 1981, according to U.S. Travel Data Center figures. The total travel-generated payroll during the same period for the region was $57,721,000, accounting for a total of 8,799 jobs.

Western Wyoming

The western region of Wyoming encompasses Teton, Sublette, and Lincoln counties. Yellowstone National Park, Teton National Park, and the Teton, Targhee, and Bridger national forests are all a part of this great vacationland.

Yellowstone is a crown jewel of the National Park System. It contains the world's most extensive area of geyser activity, with more than 10,000 thermal features. This thermal theater is the result of an enormous volcanic eruption which still remains relatively close to the surface, sustaining the hot water and steam phenomena for which the park is famous.

Yellowstone is also famous for its abundant wildlife. More than 60 species of mammals, 200 species of birds, and a half-dozen game fish are found in the park.

The bear has become the symbol of Yellowstone. Black bears once roamed the entire area of the park and adjacent forests, and could be seen along the roads. Since the 1960's, however, bear sightings have become less common, when the park's garbage dumps were closed in an attempt to move the bears out of proximity with people. Biologists estimate there are 650 black and 300 grizzly bears in Yellowstone.

Spectacular attractions in the park are numerous. At Mammoth Hot Springs stands the Liberty Cap, a now barren cone composed mainly of calcium carbonate. Other area attractions include the Minerva Terrace and the

Appollinaris Spring.

The Norris Junction Area contains the Norris Geyser Basin, with its hundreds of geysers, pools, and hot springs. In the same area, the falls of the Gibbon River cascade over rocks and through rapids, culminating in 84-foot-high Gibbon Falls.

Perhaps the most well-known area in the park is Old Faithful. Although the Old Faithful geyser is neither the largest nor highest geyser in the park, it is certainly the most publicized. Since it was first discovered in 1879, the geyser has been remarkably consistent, erupting at nearly equal intervals 21-23 times a day. Its water column normally reaches maximum height in 15-20 seconds.

Numerous other geysers are located in the Old Faithful area. The Plume Geyser, one of the park's most regular geysers, erupts every 25-27 minutes to a height of 25-30 feet. The Riverside Geyser, located on the east bank of the Firehole River, erupts with a 75-foot column of water arching over the river--making it one of the few geysers in the park that erupts at an angle rather than straight up. The Morning Glory Pool long has been considered one of the most beautiful pools in the park. However, in recent years it has lost some of its color, the result of refuse thrown into the water, causing the cone to become plugged. The lower temperatures have allowed yellow algae to grow, modifying the original deep pure blue to bluegreen color.

Another spectacular area of the park is the Grand Canyon of the Yellowstone. The canyon reaches a maximum depth of 1,540 feet a short distance down-river from Artist Point. Uncle Tom's Trail, named for Tom Richardson (who built the first canyon trail in 1890), descends 700 steps about halfway to the canyon floor and just a few yards from the Lower Falls. The Lower Falls, twice the height of Niagara Falls, fall 308 feet to the canyon floor.

Yellowstone Lake, in the Lake Junction area, is America's largest mountain lake at an altitude of 7,733 feet. It is approximately 20 miles long and 14 miles wide, with a shoreline in excess of 100 miles. The average depth of

Table 6: Visitations to Tourist Attractions Located in Western Wyoming (Visitor Days); Percent Change 1980-1983.*

	1980	1981	1982	1983	% Change 1982-1983	% Change 1980-1983
National Areas						
Yellowstone National Park	4975091	6515921	7033535	6964605	-1.0%	40.0%
Grand Teton National Park	1711287	1776121	1965239	1084506	-44.8%	-36.6%
Targhee National Forest	792217	885027	857514	933647	8.9%	17.8%
Bridger-Teton National Forest	4448941	4969767	4815270	5242787	8.9%	17.8%
Fossil Butte National Monument	838	991	1473	1635	11.0%	95.1%
State Parks						
Big Sandy State Recreation Site	(Due to low usage, no counts are kept.)					

Sources: U.S. Forest Service; National Park Service.

*NOTE: Estimates for Yellowstone, Grand Teton and Fossil Butte computed by dividing total visitor hours by 12; 1983 figures for Yellowstone and Grand Teton reflect implementation of a new system for calculating park visitation; data for Targhee and Bridger-Teton represent a percentage of the total for Wyoming Region 4 forests.

the lake is 137 feet, although it reaches depths to 320 feet.

Isa Lake in the West Thumb Area is one of the world's most unusual lakes because its waters drain to both the Atlantic and Pacific oceans. Water flowing west from the lake eventually reaches the Atlantic via the Firehole, Madison, Missouri, and Mississippi rivers to the Gulf of Mexico; waters leaving from the east flow to the Pacific via the Lewis, Snake, and Columbia rivers.

Recreational opportunities are rich and varied in the park. Boat marinas and ramps are located at Bridge Bay and Grants Village. Camping facilities are available throughout the park, although most are open only from mid-June through mid-September. Fishing is excellent on the many streams and rivers, with "fly fishing only" or other restrictions applicable in some areas. For hikers, more than 1,000 miles of trails lead to remote sections of the park. There are both self-guided trails and ranger-conducted hikes. In addition, the National Park Service conducts an extensive program of interpretive programs to explain the park and its many features.

Winter in Yellowstone also can be enjoyed by participating in snowcoach excursions and ski tour treks. Yellowstone winter tours are available in Jackson, Pahaska Teepee, or West Yellowstone from mid-December to mid-March.

The John D. Rockefeller, Jr., Memorial Parkway extends from West Thumb in Yellowstone National Park to the south boundary of Grand Teton National Park near Jackson. Established by an act of Congress on August 25, 1972, the parkway stands as a tribute to the many contributions to national park conservation made by John D. Rockefeller, Jr.

Grand Teton National Park was established in 1929. At the time, it included only mountains and a narrow strip of land with a few piedmont lakes. In 1950, it was enlarged to include most of the Jackson Hole National Monument. Today, the entire park area encompasses almost 500 square miles. More than 60 species of mammals, over 100 species of birds, and a half-dozen game fish can be found in the Jackson Hole area.

The American elk is the most common member of the deer family found in the park. During winter, the elk migrate from their summer ranges high in the mountains to the floor of Jackson Hole, many to the National Elk Refuge just north of the town of Jackson.

The waters of Teton National Park are one of the last wild refuges of the cutthroat trout. The Snake River cutthroat is found only in the Snake River watershed. Other game fish in the park include brown, rainbow, brook, and mackinaw trout.

Jackson Lake is over 16 miles long, with a shoreline of about 81 miles. It lies at an elevation of 6,770 feet above sea level and reaches depths of 445 feet. The Teton Range rises dramatically from the west shore of the lake. Boat marinas provide access for power boats, hand-powered craft, and sailboats.

Jenny Lake is the second largest lake in the park. It lies at an elevation of 6,783 feet and reaches a maximum depth of 256 feet.

Hiking and camping are other important recreational activities afforded by the park. Hiking trips can be made on more than 200 miles of trails. The mountain climbing season is from June 15 through September 15, depending upon the weather. Float trips are also available on the Snake River from many commercial outfitters in the area.

Teton National Park is flanked to the south by the Bridger-Teton National Forest. Merged into one national forest on July 1, 1973, the Bridger-Teton National Forest consists of 3.5 million acres and seven ranger

districts.

The Teton Wilderness Area, with its 563,500 acres of rugged backcountry, is a major attraction. At the highest point in the Teton Division is Yount's Peak, rising 12,165 feet at the headwaters of the Yellowstone River.

Hunting in the Teton Division attracts hunters from across the nation. Each year, approximately 4,000 elk, 400 moose, and 1,500 deer are harvested. Some 65 outfitters with campsite permits pack hunters to remote areas.

The Bridger Division, established on July 1, 1908 by order of President Theodore Roosevelt, was named for mountain man Jim Bridger. It contains more lakes than any forest in the intermountain region, along with 804 miles of prime trout streams.

The 383,30-acre Bridger Wilderness contains scenic wildlands and colossas mountains, including 13,783-foot-high Gannett Peak. More than 1,300 lakes dot the rugged landscape. The Green River, the major tributary of the Colorado, begins in the Bridger Wilderness. For the serious backpacker, more than 500 miles of trails provide routes through the area.

Fossil Butte National Monument is an important visitor attraction in Lincoln County. The area is of importance because of its unusually fine concentration of fossilized, aquatic vertebrate remains, which represent the evolution of freshwater fish better than any other known in America. The 8,180-acre Fossil Butte area was established as a national monument by public law on October 23, 1972 and is administered by the National Park Service.

Total travel expenditures in the three-county area that makes up the western Wyoming region amounted to $112,729,000 in 1981, according to U.S. Travel Data Center figures. The total travel-generated payroll during the same period for the region was $21,304,000, accounting for a total of 3,086 jobs.

S.T. Mast and Ruth Tebbutt, IPR

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Industry Interview

Promotion Viewed as Key to Travel Increases

(The following is excerpted from an interview with Suzanne Young, administrator for the Tourism Promotion Bureau, the marketing division of the Jackson Hole Chamber of Commerce. The interview, which was conducted in August, points out some of the challenges faced by travel-sensitive Teton County. Minor editing is included for the sake of clarity.)

WQU: What is the purpose of your organization?

YOUNG: Our main job is advertising and promotion, but we're also developing market research data so that we can make better choices with our advertising. Originally, the group was organized in hopes that if major tourism funding became a priority in this state or this county, there would be an organization in place with research data ready to go so that we could begin implementing a major budget.

WQU: Tell me about some of your specific activities.

YOUNG: We handle the Chamber's ad budget, which is comprised of matching funds from the state Travel Commission--$20,000 total--$10,000 from the Travel Commission and $10,000 from our town and county. Then we get $20,000 a year from American Express through a program with a rebate--half percent of charge sales in the valley back to us to use for advertising. The last piece is about $10,000 from the town-county for brochures and tourist information that has to be printed. It is a miniscule amount of money to market the valley with. There's probably seven hotels in this town who have twice or three or four times that just to do their own property. We don't have enough money to go out everywhere, so we concentrate on the places that already feed us summer and winter. That's California number one. The state of Wyoming would probably be number two, and in summer, Colorado, Utah, and the Midwest as a group--Chicago, Ohio, Illinois, Wisconsin--are probably number three. In the summer, foreign visitors as a whole come in number four. In the winter, it's pretty much ski traffic. So California is number one, Utah, Idaho, and Wyoming are number two. Then you get into places like Texas, Chicago, and New York which are isolated pockets because there's air service or because they have big ski clubs that we've developed.

WQU: Are you looking to increase tourism, and if so, how?

YOUNG: The Tourism Promotion Bureau and the Chamber feel the main thrust of this organization is to increase the economic base of the county by developing fall/winter, which are sorely underutilized now and maintaining summer levels which have been slipping.

WQU: Do you have any idea to what extent you could increase visitations during those periods?

YOUNG: Without knowing present hotel occupancy information...It's a guess now. The guess is that fall is running maybe 35 percent to 40 percent occupancy for September, and then it drops real low in October-November. A lot of places just close. In winter, February and March, because of skiing, Teton Village, for example, may be running at 85 percent occupancy for those two months. During months like November and April, it may be down to 30 percent so there's a huge potential. In the past, winter has been hindered because air service was so spotty and we didn't have through fares. Now they have Continental, Western, and Frontier. Anybody you talk to in winter markets will tell you that air service is absolutely the key to the future of this valley in winter. Promotion money is essential to increasing these seasons of fall and winter.

The other point I want to make is that there's a dynamic going on in this community that started with a community meeting, a workshop called, "Blueprint for Tomorrow." They set up some economic task force groups called, "People Interested in Economics (PIE)." From the people in the audience, PIE identified a number of subject areas for task force study.

WQU: What kinds of things?

YOUNG: Such things as funding tourism promotion, housing, balancing protecting the resource with developing the economy, the Yellowstone Ecosystem. The task force looked at the greater Yellowstone Ecosystem, the forests and the parks, as a whole, asking, "What is the impact of that resource on this economy?" There's a group in Bozeman, Montana, called the Coalition for the Greater Yellowstone Area which is trying to get people

in this region to look at the entire ecosystem. The ecosystem doesn't know boundaries. It doesn't know that the Shoshone National Forest reports to one district and the Gallatin National Forest reports to another and the Targhee Forest reports to yet another. I think they said there's 25 different governmental bodies involved in administering some portion of the greater Yellowstone Ecosystem. Somebody drilling for natural resources in a remote corner of the Shoshone National Forest doesn't think they're affecting Jackson Hole's economy. Even Jackson Hole doesn't think they are until maybe the seventh or eighth well upsets the water table, the thermal areas, Old Faithful stops, and it's on the news and in the magazines. Then, 10 percent to 15 percent of the people quit coming because Old Faithful is the only thing they've ever heard of, and so Jackson Hole's business drops 10 percent. The task force group felt there should be an overriding mandate that would cover the whole area, and policies of the national forests would not only meet the test of their national office but also would be tested against the mandate for this area to make sure they are compatible.

Housing for employees was another concern. In towns like Vail and Sun Valley, people can't afford to live where they work. So you have, in a sense, immigrant workers dealing with the public who don't feel connected to your community or a sense of belonging, and yet they represent the community to the public. The way tourists feel about a town, you know, when they say how really nice they were treated, is often as important as whether their beds are clean. So people felt that it was critical that workers belong to a community and not have to be commuters. In Sun Valley or Vail, they can live 25 to 30 miles down the road and drive up. Jackson doesn't have that advantage because we are land-locked with federal land and mountain ranges. Some of the large hotel owners and an architect suggested some sort of block grants that private industry underwrote and then private industry would be able to house their employees. The general consensus was the owners aren't at that point. Yet, I see from the newspaper that everybody is hurting for summer help. I've never seen so many ads for tourist industry service people. The state unemployment office says they have only 25 people registered. Last year at this time, it was 400. One of the problems is you have to live four to a house because a house costs $550 a month to rent. Which is okay for college-age kids. They're willing to put up with it for a while. But as the community grows, we need a manager over at the restaurant and a year-round desk supervisor at the Richard Inn Hotel. That guy who is getting $18,000 a year is not going to be able to afford a house. The town's businesses used to be a kind of mom and pop run organization. They lived at the hotel and family restaurant. Probably the mortgage on it was 1950-1960--they could afford that. When that mortgage got sold, the cost of running the place went up because the mortgage cost much more than it did when mom and pop ran it. Often the guy running it now is not a big roller because he's coming up with an exhorbitant mortgage payment every month. He's got to find a place to live. He might be willing to rent for a year or two with his family just to live in wonderful Jackson Hole. But three or four years down the road those people want to buy a home. Often they go to Montana or Idaho or another part of Wyoming where things are cheaper. That's why the cost of living is high; the cost of property is real high. It may not be any higher than other desirable places to live, but we don't have that middle range stuff that you find in a bigger city. Sometimes people forget that Jackson has only 5,000 population in town and 10,000 in the whole county.

WQU: Everyone, including the state, wants to increase shoulder season traffic because the national parks are basically maxed out in peak seasons. Is that possible?

YOUNG: The physical plant is in place. You don't have to build a thing. All you have to do is allocate some more money to develop tourism promotion to get the word out. States surrounding us have a resort tax--Nebraska, both Dakotas, Colorado, Utah, Idaho, Montana, Arizona, and New Mexico, as well. They're all selling mountains, horses, fishing streams. Why would anybody come here if they're getting a much harder sell, better looking stuff, more color, more distribution. The state Travel Commission budget was increased $200,000 for the biennium, which is not much but...

WQU: Is that loaded for this area?

YOUNG: Oh no. If anything, it will work against us.
WQU: Why?

YOUNG: The Travel Commission takes heat if they promote Grand Teton and Yellowstone too much because the rest of the state feels they are only promoting this area.

WQU: But isn't the big magnet Yellowstone and Teton? Don't many travelers basically stop other places on their way to the parks?

YOUNG: The rest of the state benefits when they're coming through the whole state to get here. They see all the other attractions in the literature they receive and they say, "Let's go to Ft. Laramie, there's the old Pony Express Trail. Let's plan a few extra days." It's a matter of vision and leadership at the Travel Commission is my belief. It isn't enough just to keep increasing the Travel Commission's budget to buy more ads that say, "Come to big, wonderful Wyoming." We need to develop the product. Right now we are selling "big." Most people's experience if they've driven I-80 is not scenic. They don't get to see the fishing streams and beautiful woods from the interstate. One idea is to make turn-out visitor rest areas that tell the rest of the story of our state on the highway (I-80) where we get the most traffic. The Pony Express Route came through here and the Mormon Trail and the Pioneer Trail and the Transcontinental Railroad. People know about Promontory Point and the golden spike. We have lots to tell. The history of the cowboy could be done in one panel at a rest area someplace, or it could be located in a town. The rest area says if you drive 25 miles that way or 34 miles that way, you'll see an exhibit on the history of the cowboy, and the cowboy legend in Wyoming. People might say, "Yes, let's go over and see that."

WQU: Do you see any special problems in increasing off-season visitations, perhaps because of inadequate governmental policies?

YOUNG: I guess it's just one big, overriding one--the reluctance of elected officials in this state to let us have a tourism tax here. Colorado and Arizona have home rule so a county can decide if they need a tax. Here, of course, we need the state legislature's approval. Many counties in this state get hefty oil and gas royalty payments. Drilling on lands around here would ruin the economy because what we sell is beauty and scenic wonder, so to have oil rigs dotting the land would wreck the one business we do have. The other thing is that the rest of the state doesn't suffer from the tremendous impact that tourism causes here. Yellowstone and Teton aren't ours. I never think of them as our resource. But we are the governing body, the tax unit that pays for that impact. We have a water system in this town that someone told me could handle 150,000 people. We're a town of 5,000, but it has to be that extensive to handle all the motels in July. Policemen. We have to have a year-round police force to handle the summer influx because you can't tell a good policeman that he can only be hired for two months. We pay the price without having any capacity to recoup revenue. We don't own the land. Ninety-seven percent of Teton County is owned by the federal government. So we can't get the tax rolls increased from the land. We're physically land-locked. We think of the tourism tax more as an impact tax.

WQU: What about diversifying the total economic sector? There was talk about casino gambling in Jackson.

YOUNG: I didn't hear a lot of support for it. My reading is that it is not well-received in the town. They feel it would change the character of the town dramatically, that it would begin looking like Reno. There's not a big encouragement for that.

WQU: Are any ski area expansions planned?

YOUNG: No. In fact, we need to fill the ones we have. We did 180,000 skier days last winter at Teton Village (a skier day is one skier skiing one day). Steamboat Springs is comparable in some ways. They don't have a major airport and they are fairly removed from a major metropolitan area. They have one major ski area and they're not around a lot of other areas. So they are comparable to us. They had 850,000 skier days last winter. Now, they are closer to a major metropolitan area than we are. But additionally, the Sheraton Hotel--when they build down there--made a major commitment to development. I've heard from independent sources that their promotion budget for the Sheraton property to promote Steamboat is $750,000 a year. Also, Colorado has a tourism tax for promotion.

WQU: And what's yours?

YOUNG: We spend maybe $20,000 out of my budget for winter advertising and the Jackson Hole Ski Corporation that runs Teton Village, as a guess, spends maybe $175,000 or $200,000, and that would be high. Promotion is just absolutely critical. I guess that's the burning issue for us.

S.T. Mast, IPR

# #

Summer Tourist Season "Good But Not Great"

Travel throughout the state during the recent summer season appears to have been generally steady to higher than year-earlier figures, according to state travel officials, although travelers in the state seem to have been more conservative in their spending.

"Off-hand, I'd say we had a good year, not a great year, in travel and tourism," says Kathy Carley, chief of news and information for the Wyoming Travel Commission. "It looks like we're running between even and a 2 percent growth factor on a statewide basis."

During August, Carley says the Cheyenne Information Center was up 3.94 percent over year-earlier figures, the Jackson Information Center was up 6.85 percent, and the Bighorn Canyon National Recreation Area was up 5.5 percent. The Fort Laramie Historical Site was down 7.32 percent, Devil's Tower was down 19.0 percent, and Fossil Butte was down 6.52 percent from year-earlier figures. She cautioned, however, that the declines at Fort Laramie and Devil's Tower were somewhat misleading. At Fort Laramie, a special promotional activity which drew about 4,000 visitors in 1983 was not repeated this year. Discounting the promotion, Carley says it appears Fort Laramie visitations may have been off by about one percentage point. At Devil's Tower, Carley says some of the decline might be due to changes in data capture methods employed this year.

From anecdotal evidence, Carley says it appears Grand Teton National Park is running about even, while Yellowstone may be down just slightly.

While it appears the visitors were here, it appears they were rather conservative in their spending. She says many people apparently were traveling in recreational vehicles or tent camping, rather than staying in hotels and motels. Restaurants also seemed to suffer, since people traveling in this manner carried their food with them.

"There were greater numbers of people at the visitor centers," Carley says, "which means they were here, but they just simply weren't spending as much money. They're very cautious in their spending."

Gene Kupke, president of the state hotel/motel association, detected a similar pattern. Kupke says it appears that state hotels and motels in northern Wyoming probably fared the best, but overall, he guessed that travel expenditures were probably off between 10 percent to 15 percent statewide.

"I noticed personally there were not near the large families. Most of my trade was couples or maybe people with one child," Kupke says.

Carley says figures on commercial travel were not available, although she notes that summer is not the big commercial travel season. "I do know that chambers of commerce in areas of the state that are doing conferences and conventions are feeling it is a very important market and they are doing well with it," she adds. "One of the biggest drawbacks to such work is the transportation problem. We don't have good air service and no mass transportation."

Kupke also felt commercial travel in the state was holding its own. In Niobrara County, for example, Kupke says railroad construction and construction activities associated with the Women's Penal Complex have helped bolster commercial travel spending.

As for the future, Kupke says he does not see much improvement in overall commercial travel unless activities in the state's mining sector improves. As for tourism, Kupke says the situation is difficult to assess since it can be affected by so many variable factors, including the price of gasoline, the general economic climate, and an evermore competitive environment among states for the tourist dollar.

Carley was more optimistic. "I'd say in the next two years we're looking at favorable travel situations. It should do nothing but go up." For one thing, Wyoming will not be competing with such things as the Olympics and the World's Fair in the next two years. Furthermore, because of its geographic setting, the Vancouver Expo in 1986 "could provide corridor access for us far more than the Olympics or the World's Fair," according to Carley.

When interviewed in early August by the WQU, travel industry people in Jackson and Cody were hoping for a late season surge in activity following the Olympics. Carley says an informal check in Jackson after Labor Day indicates that such a surge may have come about. She says her checking indicated high occupancy rates and high traffic volumes in the area. However, she says the nature of the crowd was different than one might expect at peak season, consisting mainly of older persons and young couples without children.

S.T. Mast, IPR

# #

National Park Peak Season Visits Leveling Out, Officials Say

Peak season visitations to Grand Teton and Yellowstone national parks, the state's two most powerful magnets for drawing tourist dollars, are not expected to increase from levels attained in recent years, according to Park Service officials.

Steve Ioest, management assistant for planning and development in Yellowstone, says traditional summer use patterns from mid-June to late August have held pretty much constant in recent years. "Yellowstone is a family park," he says. "Visitations fluctuate relative to the kids getting out of school and going back to school." The total numbers, moreover, have hit a plateau in recent years in which facilities in the park are full every night. Peak season numbers during the 2½-month summer peak period are approximately 2 million visitors.

Jack Stark, superintendent of Grand Teton National Park, agrees that the park's capacity to accommodate visitors during the peak season is "pretty well maxed out."

In addition, few new accommodations are planned for either Yellowstone or Grand Teton, indicating that peak season visitations are likely to remain approximately at present levels into the foreseeable future. At Grand Teton, no new expansion is planned, although some additional campsites are planned in the John D. Rockefeller Parkway. At Yellowstone, no new facilities are planned for either Mammoth or Old Faithful; indeed, some cabins are scheduled to be moved out of Old Faithful so they don't adversely affect the geyser basin. Those facilities, in turn, are being replaced by additional development at Grants Village, thus leaving the total number of facilities parkwide constant.

Any new expansion in facilities therefore will have to come in the communities surrounding the park. Ioest says the Yellowstone Park master plan calls for 8,300 pillows in the park. Thus, total overnight visitations in the park will remain constant, while some increases in day-visitations from surrounding communities might be expected. Ioest says the saturation limit during peak seasons probably has not been reached, but any increases will be on a day-use basis.

Shoulder season visitations during spring and fall, on the other hand, are a different matter. In Yellowstone, Ioest says the facilities (depending upon the weather) can stay open longer if there is a demonstrated demand for those facilities. In addition, Ioest says the concessionaires in the park would like to stay open longer, provided they can make a profit from the increased usage.

"I believe the trend is toward increased shoulder season use," Ioest says. "Right now, there is a slow increase in the shoulder seasons year to year." One way to increase such usage is through group activities during the off-seasons. Ioest says that while it is not Park Service policy to displace traditional summertime usage with groups and conventions, there is an interest in augmenting the shoulder season pattern of slowly growing individual visitations through group activities.

"I think mainly its a merchandising type activity in that the facilities are here," Ioest says, "and to a certain degree, can stay open longer if the demand is there."

At Grand Teton Park, Stark says he does not anticipate any large increases in shoulder season visitations, although the opportunities for such increases certainly exist. September and October offer some of the greatest possibilities, according to Stark, due to the natural beauty and plentiful accommodations prevalent during this season.

During winter, Stark says there is already substantial crosscountry skiing and snowmobile traffic, which will probably continue at its present level.

One constraint on development of new facilities in the parks is what Ioest calls the "conflicting park mandate." On the one hand, the parks are supposed to preserve the natural and historic features of the parks. On the other, they are supposed to provide for use by the public to enjoy those features.

In practice, the focus of the Park Service is strongly on preservation of the resource. The difference between Park Service and Forest Service management, for example, is striking. Under its multiple use philosophy, the Forest Service allows a variety of activities--timbering and mining, for instance--that are strictly prohibited in the parks.

"We like to think if we're going to error," says Stark, "we're going to error on the side of preservation of the resource."

The "conflicting mandate" has implications for areas other than the parks. With no new facilities called for in the master plan, any new impacts will fall on surrounding communities and national forests. Ioest says the parks recognize their responsibility and thus maintain close working relationships with the communities surrounding the parks. In addition, he says, federal land managers from both the parks and from the national forests surrounding the parks periodically meet to discuss management of resources in the entire area.

S.T. Mast, IPR

# #

Constraints Could Dampen Increased Use of Forests Surrounding National Parks

Land management in the national forests surrounding Yellowstone and Grand Teton national parks poses special challenges for Forest Service officials. While the parks are reaching saturation levels in overnight usage during peak seasons, additional opportunities for such usage still exist on the national forests, principally because of the large land masses involved. But without additional funding to properly manage such increases, forest officials say, the forests may also be reaching certain limits.

The forests surrounding the national parks provide bountiful recreational opportunities. The Shoshone National Forest east of Yellowstone encompasses 2.4 million acres of land, 53 percent of it in a wilderness state. The 3.4-million-acre Bridger-Teton National Forest stretches from Kemmerer to Yellowstone, 70 percent of which is in a roadless condition.

While the focus of most travel to northwestern Wyoming is on the national parks, visitors often spend as much time in the forests surrounding the parks as in the parks themselves. Thus, the forests serve as a kind of "buffer zone" for travel to and from the parks.

The differences in management philosophy between the parks and the forests create some special problems, according to Fred Kingwill, public affairs specialist for the Bridger-Teton National Forest. The parks manage with the desire to maintain the pristine nature of the parks. The forests, on the other hand, manage under a multiple use concept which allows for a variety of activities, including timbering and mining. Because of this management philosophy, visitors also have freer use of the forests and their resources than is available in the parks.

One problem this creates, however, is that the expectations visitors bring with them and their actual vacation experiences may be at odds. Kingwill says the actual journey to the area is only one part of the total vacation experience. Visitors form expectations beforehand concerning the nature of the trip. Afterward, they reflect upon what they saw, often aided by various forms of media material. When expectations are not met, problems can result, especially when the visitor begins thinking about a return trip. Visitors expecting to see nothing but the pristine wilderness of national parks, for example, may be aghast to see a logging operation on the surrounding forest lands.

Because of the multiple use concept, on the other hand, the forests can handle more activity. Since few new facilities are scheduled for Yellowstone and Grand Teton, visitation increases will have to be absorbed by the national forests and surrounding communities. Campground facilities are more plentiful in the forests, as are opportunities for such things as "keeper" fishing and hunting.

While the focus of a traveler's vacation may be the national parks, Kingwill says visitors often find "they would really prefer to do their activities in a national forest," because of its more liberal use concepts.

In 1983, according to Kingwill, the Bridger-Teton absorbed 2.1 million visitor days, and could absorb a great deal more if money were available to properly accommodate the increases in dispersed recreational activities.

Ken Wood, recreational lands man for the Shoshone National Forest, agrees that recreational usage probably could be increased. At present, however, Wood indicated that the Forest Service may not be trying to increase usage in large areas of the forest, due to concerns about the grizzly bear.

At the same time, Wood says greater opportunities exist for expansion in the nonpeak seasons. "In May and June," he says, "the wildlife show up the North Fork is fantastic. Most people don't realize there is this kind of show. If they were aware, they might capitalize on it." While Wood says he doesn't view it as a function of the Forest Service to advertise, "the local people who advertise the park can advertise the Shoshone Forest as well."

Increases in usage likely will come through dispersed recreation rather than from developed campgrounds or other developed activities. Kingwill says developed sites must mainly be located on private lands--a problem in Teton County since only 3 percent of the land is privately owned.

"Congress and the Forest Service direction is toward dispersed recreation," he says, and such an approach is constrained by tight administrative budgets. In the two big wilderness areas in the Bridger-Teton, Kingwill says, "we feel right now about at the end of our administrative ability to deal with them. They (the area rangers) are saying it's getting to the point that there are too many people up there right now."

The difficulty, Kingwill says, is not that the land could not support more dispersed recreational use, but it probably cannot support more use without damage to the resource--something the Forest Service is charged with preventing.

In the end, says Kingwill, "if the American public wants a particular type of social service, they will get it," and Congress will increase funding to sustain desired kinds of use and development.

S.T. Mast, IPR

# #

Hunting and Fishing Boosts Revenues

Wyoming's bountiful natural resources attract thousands of visitors to the state each year, along with millions of dollars in travel and recreation related revenues. Among the major attractions are the superb hunting and fishing opportunities afforded by Wyoming's many fine streams and forestlands.

In 1983, according to Game and Fish Department figures, a total of $230,980,312.25 was spent in the state by hunters and fishermen during 5.2 million recreation days. License sales for all classes of hunting, fishing, and trapping totaled 628,824.

Fishing was the most popular activity, with a total of 263,013 license sales, and 3.8 million recreation days devoted to the sport. Resident license sales accounted for 137,579 of the total, followed by five-day tourist licenses (111,103) and nonresident licenses (14,331). Resident license holders spent an average of $34.75 per day, followed by five-day permit holders ($32.73) and nonresidents ($23.17).

Deer hunting topped the list of big game hunting activities, with a total of 124,783 license sales and 445,369 recreation days devoted to the pursuit of the state's mule and whitetail deer. Resident license sales accounted for 88,306 of the total, while nonresident sales accounted for 36,477. However, nonresidents spent more per day, $118.54 compared to $45.69 for residents.

Antelope licenses were second in the big game category, of which 69,438 were for resident licenses and 43,489 were for nonresident licenses. As with deer hunting, however, nonresidents spent more per day, with $182.84 in average expenditures, compared to $85.56 for residents. In total, 182,162 recreation days were devoted to antelope hunting in the state.

While elk hunting license sales were smaller than those for antelope, more recreation days were spent in pursuit of elk than in the pursuit of antelope. At the same time, nonresident per day expenditures for elk hunting also were higher. A total of 317,162 recreation days were spent by 62,670 permit holders (55,233 resident and 7,437 nonresident). Per day expenditures amounted to $205.45 for nonresidents and $63.98 for residents.

Among lesser categories of big game hunting, a total of 1,430 moose permits were issued in 1983, accounting for 7,454 recreation days. Black bear permits totaled 1,654, accounting for 21,549 recreation days, while bighorn sheep permits totaled 361, accounting for 3,915 recreation days.

A total of 35,345 birds and waterfowl licenses were issued in 1983, with 32,193 going to residents and 3,007 to nonresidents. A total of 228,989 recreation days were spent in pursuit of the state's birds and waterfowl. Resident turkey permits totaled 3,597, while nonresident permits totaled 607, for a total of 4,204 permits issued.

In the small game category, a total of 21,106 licenses were issued, accounting for a total of 144,457 recreation days. Resident licenses accounted for 20,160 of the total, with nonresident licenses accounting for 607 of total sales.

Doug Crowe, planning coordinator for the Wyoming Game and Fish Department, says the number of licenses issued in a certain year is generally a function of the availability of particular game species. A bad winter and low productivity the following year may result in some curtailment in the numbers of licenses issued; conversely, a light winter and good productivity the following year might result in license increases.

Crowe says the greatest year to year fluctuation in big game species probably occurs in the state's 59 antelope herds. Among other species, Crowe says that "birds vary tremendously, much more than the big game populations. Because of the large clutch sizes, they can increase rapidly. They are very susceptible to meteorlogical changes. They can also decrease rapidly."

Generally, there is little generalized fluctuation in the state's fisheries, although localized problems may result from winter kill or pollution. In such cases, says Crowe, the fisherman always has the option to fish somewhere else.

All the state's big game herds are managed with certain numerical objectives, which influence the number of licenses issued. Some licenses can be very difficult to obtain. Crowe says moose and bighorn sheep licenses in particular are difficult to obtain, where 20 applications are handled for each permit issued. Within certain areas, antelope licenses also can be difficult to obtain, where applications may outnumber permits issued by a rate of 10 to one.

S.T. Mast, IPR

# #

ECONOMIC CHANGES

ECONOMIC CHANGES

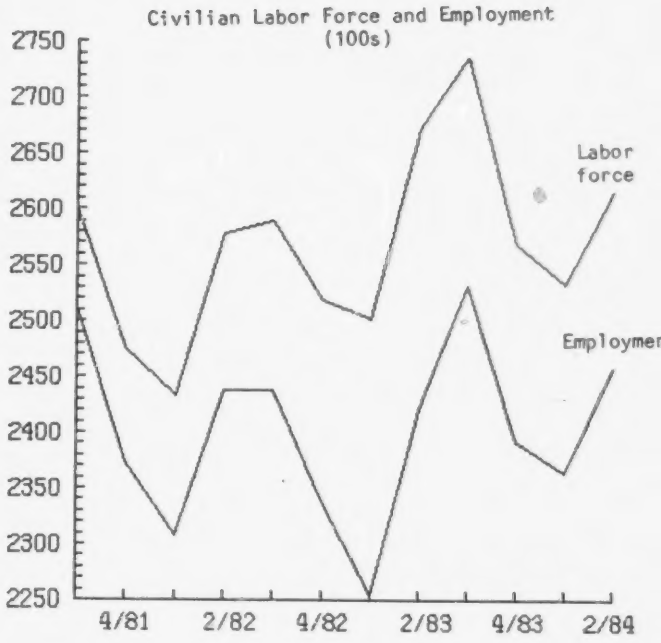
(Editor's note: The purpose of this section is to point out areas in the Wyoming economy in which noteworthy changes occurred, or in which existing trends were significantly accentuated, during the latest reporting period.)

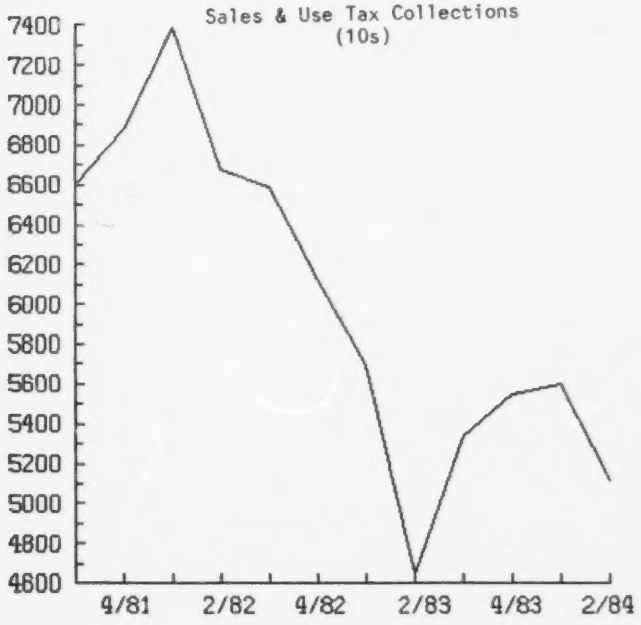
Developments in labor, sales and use tax collections, and new car and truck registrations highlight developments in the Update's second quarter statistics.

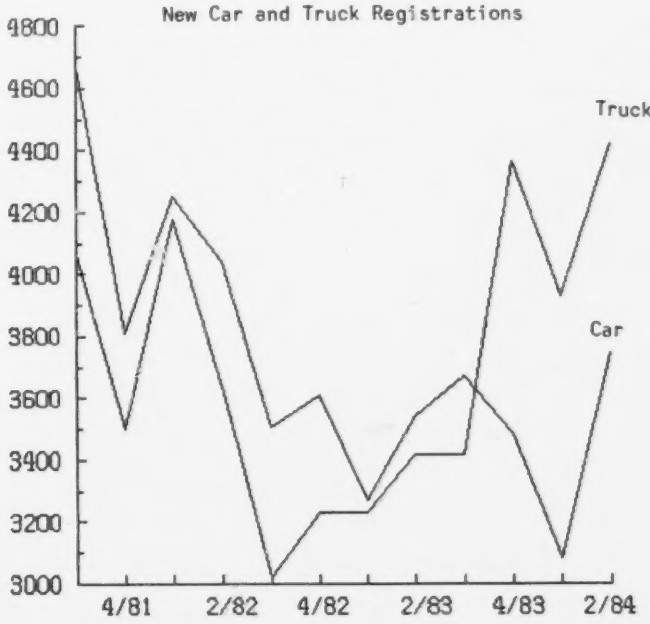
In labor force news, the number of employed persons grew during the second quarter, to 245,871. That compared to 236,361 for the first quarter, and to 242,087 for the second quarter of 1983. At the same time, the number of unemployed persons dropped, to 15,805 as compared to 25,161 during the second quarter of 1983, while the unemployment rate fell another .70 percentage point to 6.0 percent.

Sales and use tax collections dipped slightly from first quarter figures, but were still running ahead of year-earlier figures ($51,151,000 during the second quarter of 1984, compared to $46,453,000 during the second quarter of 1983). The figures suggest slow improvement in such collections, which hit the bottom during the second quarter of 1983--the lowest level reached during the Update's 12-quarter reporting period.

Among consumer statistics, new car and truck registrations showed some significant gains. New truck registrations climbed to 4,418 during the second quarter, the highest level attained during the Update's 12-quarter reporting period. New car registrations also showed improvement, reaching 3,741 (their highest level since the second quarter of 1982).







WYOMING DATA

Table 7: Agriculture[1]

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. Timber Cut in Wyoming National Forests (MBF)	25613.	33929.	11658.	4285.	23430.	26318.	14707.	5208.	35941.	47574.	21261.	7625.
Price Indices[2] (1967=100)												
2. Wyoming Crops, Prices Received-Latest	315.	288.	260.	249.	245.	244.	247.	254.	284.	280.	275.	273.
3. Wyoming Crops, Prices Received-Average	325.	301.	275.	251.	239.	243.	246.	253.	268.	280.	275.	277.
4. U.S. Crops, Prices Received-Latest	232.	234.	232.	240.	239.	220.	234.	239.	263.	262.	271.	279.
5. U.S. Crops, Prices Received-Average	249.	232.	238.	240.	235.	221.	226.	244.	254.	262.	265.	275.
6. Wyoming, All Commodities, Prices Received-Latest	270.	239.	256.	256.	250.	225.	261.	246.	238.	245.	262.	246.
7. Wyoming, All Commodities, Prices Received-Average	267.	251.	248.	261.	246.	234.	249.	253.	233.	240.	255.	256.
8. U.S., All Commodities, Prices Received-Latest	243.	233.	244.	252.	248.	232.	245.	243.	250.	256.	266.	262.
9. U.S., All Commodities, Prices Received-Average	252.	236.	243.	251.	247.	234.	240.	247.	247.	251.	263.	264.
10. Wyoming Livestock, Prices Received-Latest	257.	224.	254.	258.	251.	219.	265.	244.	224.	235.	257.	238.
11. Wyoming Livestock, Prices Received-Average	250.	236.	239.	264.	248.	231.	249.	253.	223.	228.	248.	250.
12. U.S. Livestock, Prices Received-Latest	254.	233.	254.	262.	257.	243.	256.	247.	240.	252.	263.	248.
13. U.S. Livestock, Prices Received-Average	256.	240.	248.	261.	258.	245.	253.	251.	242.	242.	262.	255.
14. Prices Paid by U.S. Farmers-Latest	306.	304.	314.	317.	316.	315.	321.	324.	326.	328.	335.	335.
15. Prices Paid by U.S. Farmers-Average	306.	305.	313.	315.	317.	315.	320.	324.	325.	327.	333.	336.

[1]First time readers of WQU should refer to the "Format" page (in back) for an explanation of abbreviations and table formats.
[2]The index for the last month (latest) of each quarter, along with the average of the three monthly indices of each quarter.

Sources: Series 1: United States Forest Service. "Timber Cut and Sold, Convertible Products." Region 2 and 4 reports published quarterly.
Series 2-15: Wyoming Crop and Livestock Reporting Service. Bi-weekly Ag Statistics.

Table 8: Banking and Finance

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. Total Bank Loans and Leases Financing Receivables (T$)[1]	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	2313197.	2359492.
2. Total Bank Deposits (T$)	3161593.	3278504.	3237333.	3322621.	3345619.	3587554.	3537206.	3669552.	3683748.	3789387.	3747828.	3812354.
3. Total Non Interest-Bearing Deposits (T$)[1]	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	657189.	734297.
4. Savings and Loan Mortgage Loans (T$)[2]	785208.	778334.	762153.	760622.	766593.	765708.	758938.	760041.	775159.	775795.	767125.	775396.
5. Savings and Loan Deposits (T$)	911587.	904212.	921642.	907758.	893087.	895889.	921290.	960250.	966113.	1006927.	1051271.	1087036.
6. Prime Interest Rate[3]	20.0	15.8	16.2	16.2	13.5	11.8	10.5	10.5	11.0	11.0	11.5	13.0

[1]During the first quarter of 1984, the Wyoming State Bank Examiner began publishing it's quarterly report ("The Abstract Report of State and National Banks in Wyoming") in a slightly different format. IPR will therefore be altering the following banking and finance data series: total bank loans and total demand deposits. Beginning in the first quarter of 1984, data for total bank loans will include lease financing receivables; data for total bank demand deposits will be replaced by figures for noninterest-bearing deposits. For comparison, the reader can refer to past issues of the WQU.
[2]Only members of the Federal Home Loan Bank Board are included.
[3]Rate is for the last month of the quarter.

Sources: Series 1-3: Wyoming State Bank Examiner Quarterly Report.
Series 4 and 5: Federal Home Loan Bank of Seattle, Monthly Report. Comparative statistical analysis of member institutions.
Series 6: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published Monthly.

Table 9: Business Conditions

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. New Domestic Corporations	459.	400.	389.	428.	403.	377.	348.	410.	366.	309.	359.	359.
2. New Foreign Corporations	356.	358.	357.	326.	285.	272.	240.	259.	331.	292.	260.	249.
3. Total New Corporations	815.	758.	746.	754.	688.	649.	588.	669.	697.	601.	619.	608.
4. Business Failures	27.	33.	31.	46.	54.	58.	47.	68.	52.	58.	59.	64.
5. Value of Business Failures ($)	-240995.[1]	2987139.	2331991.	6842595.	-13034324.[1]	-6860186.[1]	6438421.	6400333.	535473.	-8163171.[1]	17789116.	14081414.
6. Personal Bankruptcies	98.	85.	96.	125.	123.	122.	140.	152.	172.	141.	180.	166.

[1]Assets exceed liabilities.

Sources: Series 1-3: Secretary of State. New and Foreign Corporations. Monthly report.
Series 4-6: Cheyenne Credit Bureau. Wyoming bankruptcy cases, business failures, and value of failures. Weekly publication.

Table 10: Construction

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. New Residential Dwelling Units	1072.	784.	851.	1050.	872.	689.	727.	1044.	988.	725.	512.	1022.
2. Value of Residential Dwellings Constructed (M$)	67.8	40.4	40.4	58.6	51.2	41.9	44.4	70.7	60.1	44.0	30.6	59.6
3. Value of Nonresidential Construction (M$)	63.1	57.6	25.2	59.8	63.1	35.2	37.9	54.4	51.8	53.9	11.0	28.6
4. Building Permits Issued in Selected Wyoming Cities	3755.	2516.	2317.	3353.	4295.	2803.	2762.	3586.	3701.	2138.	2025.	3892.
5. Value of Authorized Construction (T$)	91789.	53839.	49768.	62939.	101359.	34470.	37119.	46402.	68715.	51924.	29471.	42320.
6. Mortgage Interest Rate[1]	14.69	15.23	14.93	14.74	14.34	13.09	12.97	11.90	12.08	11.94	11.56	11.64

[1]Conventional first mortgage for new home purchase. U.S. average for last month of quarter.

Sources: Series 1-3: F.W. Dodge Division of McGraw-Hill. "Dodge Construction Potentials." Published monthly.
Series 4-5: Institute for Policy Research. "Local Construction Reports." Survey of authorized construction in selected cities conducted monthly.
Series 6: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published monthly.

Table 11: Consumers

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. New Truck Registrations	4067.	3502.	4176.	3636.	3024.	3230.	3233.	3415.	3417.	4363.	3927.	4418.
2. New Car Registrations	4664.	3808.	4249.	4042.	3506.	3610.	3272.	3539.	3671.	3483.	3083.	3741.
3. Wyoming Personal Income (M$)	1477.	1474.	1476.	1524.	1477.	1512.	1429.	1484.	1589.	1589.	1594.	INA
4. US Disposable Income[1] (B$)	2079.	2110.	2132.	2157.	2196.	2238.	2261.	2303.	2367.	2429.	2502.	2558.
5. US Personal Income (M$)	615581.	632052.	620600.	636571.	639828.	660944.	653446.	666761.	682774.	714509.	720297.	INA
6. Latest US Consumer[2] Price Index (1967=100)	279.1	281.1	282.5	290.1	292.8	292.0	293.0	297.2	300.8	301.5	303.3	306.2
7. Quarter's Average US CPI	276.7	280.4	281.9	286.8	292.3	292.9	292.5	296.1	299.5	301.4	303.1	305.2
8. Liquor Sales (T$)	9396.	11365.	7789.	9057.	8917.	10464.	7102.	7868.	8455.	9863.	6622.	7478.

[1]Revised series. Estimates of the national income and product accounts, of which disposable personal income is a part, have been revised by the U.S. Department of Commerce for the last three years. As is usually done in July, new source data have been incorporated and seasonal factors have been updated. More information regarding the revisions can be found in the July, 1984 issue of the U.S. Department of Commerce publication, Survey of Current Business.

[2]Number shown is for the last month of the quarter. CPI shown is the index for wage earners and clerical workers, not the CPI-U.

Sources: Series 1-2: R.L. Polk and Company Motor Statistical Division. "National New Vehicle Registration Service." Published monthly.
Series 3,5: Business Week. Monthly personal income for states, regions, and the U.S. Reported monthly.
Series 4,6,7: U.S. Department of Commerce, Bureau of Economic Analysis. Survey of Current Business. Published monthly.
Series 8: Wyoming Liquor Commission. Sales data are reported to IPR.

Table 12: Employment and Labor[1]

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. Civilian Labor Force	260041.	247523.	243298.	257820.	258974.	251909.	250258.	267248.	273592.	256902.	253365.	261676.
2. Employment	251110.	237402.	230717.	243696.	243798.	233790.	225488.	242087	253149.	239275.	236361.	245871.
3. Unemployment	8931.	10121.	12581.	14123.	15177.	18120.	24770.	25161.	20443.	17627.	17005.	15805.
4. Unemployment Rate	3.4	4.1	5.2	5.5	5.9	7.2	9.9	9.4	7.5	6.9	6.7	6.0
5. Initial Claims Filed	5463.	8837.	11237.	11225.	10894.	14183.	15650.	10951.	8796.	10507.	10502.	7271.
6. Applications Received	13884.	10537.	12070.	14838.	15359.	13102.	12970.	11787.	12144.	9359.	10290.	11541.
7. New Non-Agricultural Openings	12991.	8010.	6119.	8344.	9190.	7035.	4724.	6185.	7992.	5528.	4679.	9779.
8. New Non-Agricultural Placements	10072.	6931.	5138.	7161.	8079.	5450.	4106.	6608.	10529.	6446.	5946.	9111.
9. Miners' Average Weekly Hours	41.5	42.5	42.0	41.7	39.7	38.1	39.9	39.5	39.6	39.2	42.9	43.0
10. Miners' Average Weekly Pay ($)	447.13	459.64	476.53	480.37	471.92	464.35	490.14	490.96	481.23	493.28	549.49	560.15
11. Miners' Average Hourly Wage ($)	10.78	10.81	11.34	11.52	11.90	12.18	12.27	12.43	12.15	12.58	12.81	13.03

[1]The most recent year's data are preliminary.

Sources: Series 1-11: Wyoming Employment Security Commission. Labor Force Trends. Published quarterly.

Table 13: Energy and Mineral Production

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. Wyoming Coal (TST)	25108.	23556.	26586.	25809.	24257.	26054.	25400.	24746.	29854.	30020.	32626.	28942.
2. U.S. Coal (TST)	235672.	224793.	219743.	209771.	195253.	189307.	190260.	180439.	204127.	197833.	226875.	223538.
3. Wyoming Oil (TBPD)	358.	358.	358.	354.	324.	324.	321.	311.	323.	317.	309.	307.
4. U.S. Oil (TBPD)	8550.	8566.	8629.	8657.	8653.	8679.	8679.	8658.	8656.	8663.	8648.	8675.
5. Wyoming Natural Gas (MCFD)	1118.	1068.	1136.	1138.	1075.	1306.	1128.	1222.	1011.	1322.	1348.	INA
6. U.S. Natural Gas (MCFD)	53747.	53728.	55449.	50977.	48349.	48335.	47208.	42668.	44279.	48424.	52491.	INA

Sources: Series 1,2,5, and 6: U.S. Department of Energy. Energy Data Reports. Gas data are published monthly, and coal data are published weekly.
Series 3-4: The Oil and Gas Journal. U.S. and Wyoming Oil Production published weekly.

Table 14: Government

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. Sales and Use Tax Collections (T$)	66012.	68766.	73830.	66759.	65903.	61208.	56909.	46453.	53361.	55424.	55954.	51151.
2. Violent Crime[1]	599.	553.	373.	389.	411.	295.	301.	274.	409.	241.	221.	318.
3. Nonviolent Crime[2]	6111.	5299.	4811.	5778.	6346.	5093.	4802.	4821.	5313.	4219.	3728.	4486.
4. Stolen Property (T$)	4421.	3201.	3541.	4562.	3982.	2963.	3176.	2918.	3005.	2892.	2065.	2627.
5. Stolen Property Recovery Rate	40.6	58.6	46.9	49.3	42.8	42.8	46.5	36.9	40.3	46.1	42.7	42.9
6. Percent of Crimes Cleared[3]	19.5	22.3	24.9	21.0	20.1	21.3	22.8	21.8	24.2	23.5	30.9	22.4

[1]Murder, negligent homicide, forcible rape, robbery, aggravated assault.
[2]Burglary, larceny, auto theft.
[3]Clearance of a crime indicates resolution of a complaint by arrest or other extraordinary means.

Sources: Series 1: Wyoming Department of Revenue and Taxation, Sales and Use Tax Division. "Net Collections by Business Class by County." Published monthly.
Series 2-6: Uniform Crime Reporting Center for Criminal Justice Research, Division of Criminal Identification, Office of the State Attorney General. "Crime in Wyoming." Published quarterly.

Table 15: Tourism

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
Visitors, National Parks and Monuments												
1. Yellowstone	1715175.	149682.	82758.	600071.	1614242.	116082.	65368.	553986.	1653211.	133088.	63927.	536765.
2. Grand Teton	2147775.	393843.	185935.	820236.	2066704.	371007.	183675.	686326.	1462761.	238442.	136459.	522640.
3. Devil's Tower	205660.	18159.	9425.	86305.	161989.	13232.	8912.	87506.	160953.	16894.	9037.	72461.
4. Fossil Butte	7769.	1018.	596.	6691.	10303.	1601.	626.	5134.	9120.	4206.	246.	4246.
5. Fort Laramie	64598.	10190.	5037.	31447.	51881.	6906.	4887.	28311.	56592.	7665.	2352.	27529.
6. Big Horn NRA-South[1]	56566.	27820.	17701.	42059.	53839.	30720.	13428.	44977.	56419.	29358.	18715.	45104.
Other Tourism Indicators												
7. Traffic Count (Avg. # of Vehicles/Day)	169095.	103438.	103864.	126037.	166170.	97892.	84187.	122665.	167385.	97696.	85780.	125371.
8. Hotel, Motel, and Camp Sales Tax (T$)	2073.	1447.	1247.	1273.	2226.	1323.	912.	1048.	2017.	1397.	979.	1084.
9. Gasoline Sales (TGL)	109335.	87500.	72548.	93556.	108733.	81347.	71330.	81160.	107116.	79911.	63980.	INA

[1]Big Horn Canyon N.R.A. is only partially in Wyoming. Only visitation for the Wyoming part is shown.

Sources: Series 1-6: Monthly visitor use reports of the National Park Service.
Series 7: Traffic Survey Unit - Planning Branch, Wyoming State Highway Department. "Selected Recording Stations Traffic Counter Data." Published monthly.
Series 8: Wyoming Department of Revenue and Taxation monthly report.
Series 9: Petroleum Association of Wyoming. Monthly Gasoline Gallonage Report.

Table 16: Utilities[1]

Calendar Quarters	3/81	4/81	1/82	2/82	3/82	4/82	1/83	2/83	3/83	4/83	1/84	2/84
1. Residential Electric Connections	169777.	174369.	174018.	174126.	177081.	177968.	179111.	179717.	178762.	178535.	179967.	179536.
2. Residential Electric Consumption (TKWH)	282226.	218361.	504636.	375401.	302786.	391608.	489892.	392223.	294755.	395182.	562483.	437086.
3. Commercial Electric Connections	30522.	30047.	30833.	31086.	30841.	30388.	30772.	31194.	30533.	31404.	32340.	32462.
4. Commercial Electric Consumption (TKWH)	317998.	303091.	354594.	319879.	331351.	327961.	351633.	327565.	353743.	342219.	485953.	437983.
5. Industrial Electric Connections	3484.	3590.	3581.	3451.	3702.	3751.	3647.	3667.	3655.	3624.	3119.	3150.
6. Industrial Electric Consumption (TKWH)	1112398.	1156967.	1266782.	1179112.	1178792.	1225845.	1471528.	1388817.	1397176.	1016334.	1456749.	1911229.
7. Other Connections[2]	4102.	3652.	4520.	4778.	3243.	2857.	2819.	3059.	3164.	2791.	2759.	3155.
8. Other Consumption (TKWH)	72994.	79409.	48237.	31570.	70139.	12240.	6780.	8710.	46427.	13306.	6129.	13775.
9. Residential Natural Gas Connections	72966.	74828.	75677.	75413.	74861.	75955.	76567.	76449.	74638.	75037.	76263.	75081.
10. Residential Natural Gas Consumption (TCF)	814900.	2499236.	4607468.	2504865.	872772.	2972244.	6531664.	8926691.	2871311.	8444801.	15230399.	8356402.
11. Commercial Natural Gas Connections[3]	6385.	6393.	6482.	6552.	6452.	6476.	6873.	6869.	6710.	6817.	6881.	6817.
12. Commercial Natural Gas Consumption (TCF)[3]	382137.	943319.	1955899.	1075767.	385052.	1196763.	3667569.	5716746.	1792146.	4865053.	9496853.	5231096.
13. Industrial Natural Gas Connections	90.	89.	89.	90.	90.	95.	97.	97.	97.	98.	94.	95.
14. Industrial Natural Gas Consumption (TCF)	4959825.	7479593.	7328389.	5335475.	5564715.	7918440.	7626560.	10221456.	9291988.	13201149.	13193998.	25099377.
15. Other Natural Gas Connections[3]	349.	398.	400.	404.	409.	409.	48.	48.	46.	45.	45.	46.
16. Other Natural Gas Consumption (TCF)[3]	87695.	196349.	299920.	134722.	44697.	138389.	176.	322.	5323.	267.	235.	905.

[1]Some small utilities do not report, hence the data are slightly less than actual state totals. The data are consistent. The same utilities' reports are included in each figure.

[2]"Other" includes agriculture, municipal, and other public.

[3]Figures for the first and second quarter of 1983 reflect a change in the authority connections/consumption made by the Northern Utilities. Prior to January 1983, the company listed public authority under the category of other natural gas connections/consumption. Northern Gas now combines public authority connections/consumption with their commercial natural gas connections/consumption.

NOTE: Due to divestiture, Mountain Bell is no longer able to provide IPR with the telephones in service figure; because Mountain Bell accounts for the bulk of telephone mainline service in Wyoming, IPR has decided to discontinue the telephone data series.

Sources: Series 1-18: Reports to IPR by selected electric, natural gas, and telephone utility companies. Survey conducted monthly.

Wyoming Comparative Cost of Living Index* (July 11-13, 1984): Cheyenne = 100

CITY	RANK	ALL ITEMS	FOOD	HOUSING	TRANSPORTATION	MEDICAL
Gillette	1	115.95	105.79	137.36	102.86	105.32
Jackson	2	112.57	104.82	126.14	100.35	104.10
Evanston	3	110.10	103.79	123.56	101.07	102.68
Kemmerer	4	108.43	98.24	121.98	100.79	103.19
Casper	5	104.19	110.18	101.22	105.34	108.36
Sundance	6	103.90	112.60	103.24	98.48	109.33
Sheridan	7	103.11	109.79	101.99	99.56	100.42
Cody	8	103.08	114.54	100.50	98.87	102.23
Pinedale	9	102.25	105.71	102.25	99.78	99.89
Rock Springs	10	102.16	108.82	100.82	100.90	96.23
Laramie	11	100.48	107.42	99.88	98.18	96.14
Wheatland	12	100.24	103.64	96.66	100.65	102.23
Cheyenne	13	100.00	100.00	100.00	100.00	100.00
Rawlins	14	99.84	109.66	98.08	100.22	94.20
Newcastle	15	99.59	112.18	92.21	97.19	105.18
Douglas	16	98.99	100.04	95.35	99.79	105.47
Buffalo	17	98.65	105.64	92.52	96.89	102.39
Worland	18	98.64	108.25	93.55	96.99	100.10
Riverton	19	96.98	104.31	91.39	98.95	100.43
Thermopolis	20	96.96	110.56	87.64	97.99	102.57
Lusk	21	96.06	106.67	84.92	99.08	98.43
Greybull	22	92.18	107.92	74.97	97.81	100.09
Torrington	23	90.62	98.60	78.26	95.61	97.24

*Apparel and Recreation Indices not shown.
Source: Wyoming Department of Administration and Fiscal Control.

Average Rents by City, Second Quarter 1984*

City	Average Apartment Rent	Average Trailer Lot Rent
Cheyenne	313.36	115.00
Buffalo	309.09	100.00
Casper	301.41	138.75
Cody	325.83	107.50
Douglas	295.57	117.50
Evanston	405.00	188.00
Gillette	351.10	175.50
Greybull	235.63	72.50
Jackson	409.37	106.25
Kemmerer	369.64	130.00
Laramie	338.68	128.33
Lusk	233.33	90.00
Newcastle	295.00	115.00
Pinedale	305.84	75.00
Rawlins	282.29	122.50
Riverton	305.23	114.00
Rock Springs	325.84	157.50
Sheridan	315.00	130.00
Sundance	231.67	80.00
Thermopolis	306.00	107.50
Torrington	277.50	57.50
Wheatland	241.00	100.00
Worland	294.48	115.00

*Prepared by Research and Statistics, Department of Administration and Fiscal Control.

Format

For data available at least quarterly, the last 12 quarters are printed in WQU. In this edition, published series begin with the 3rd quarter of 1981, and end with the 2nd quarter of 1984. For other data series (primarily annual), the most recent observations, up to 12, are published in WQU. Most annual data series will reappear in WQU only when updated, or about every fourth issue. Quarters are calendar quarters. For example, the 3rd quarter is composed of July, August, and September. In the table headings and narratives, a particular quarter will be indicated by notation such as 2/80 (2nd quarter, 1980), 1/80 (1st quarter, 1980), and so on.

Beside each data series name is an abbreviation in parentheses. The abbreviation indicates the units (such as dollars, tons, feet, miles, etc.) of the data. The key to the units abbreviations is below.

Throughout WQU, all data are for the state unless otherwise stated. The most recent year's data should be viewed as preliminary, due to revisions. The acronymn "INA" signifies that information is not available.

The reader should be attentive to the footnotes at the bottom of pages, particularly those accompanying a data table. The footnotes help the reader to properly interpret the data, and they also indicate when more detailed (by subject or by area) data than that which is shown is available from IPR. A list of sources follows the footnotes.

Key to Units Abbreviations

MBF - Thousand Board Feet
TKWH - Thousand Kilowatt Hours
$ - Dollars
M$ - Millions of Dollars
B$ - Billions of Dollars
T$ - Thousands of Dollars
H$ - Hundreds of Dollars
ST - Short Tons
TST - Thousands of Short Tons
MCFD - Million Cubic Feet Per Day
TBPD - Thousands of Barrels Per Day
GL - Gallons
TCF - Thousands of Cubic Feet
KWH - Kilowatt Hours
TGL - Thousands of Gallons
HBBL - Hundreds of Barrels
HMCF - Hundreds of MCF Per Day
HST - Hundreds of Short Tons
$/ST - Dollars Per Short Ton

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